AIR CONDITIONING & REFRIGERATION NEWS
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Inside Dope

By GEORGE F. TAUBENECK

Learn to live and laugh — thus delay your epitaph

Stories of the Week
Gags of the Week
Geometric Progress
Refrigerated Girls
Too True
Forgotten Man
Marketing's Future Needs

Stories of the Week

"Why do you always keep your hat on in the office, Joe?"

"To remind me I can't get any business in here."

Following a government service career Mike Di Salle twice ran unsuccessfully for high office in Ohio. Then he became chairman of the U. S. Hoffman Machinery Co.

At a stockholders meeting a disgruntled share-owner arose to insult:

"Mr. Di Salle may be a good politician, but what does he know about business?"

"If I were a good politician," Mike retorted, "I wouldn't be here."

Gags of the Week

From the time an infant tries to get his toes in his mouth, life's a continual struggle to make both ends meet.

If ships from the earth ever set out to conquer other worlds they may find themselves, at the end of the journeys, in the position of painted war-canoes drawing slowly into New York harbor.—*Science Digest.*

If it's such a small world, why does it take so much of our money to run it?

Real friends are those who, when you've made a fool of yourself, don't feel that you've done a permanent job.—*Indiana Teacher.*

Geometric Progress

A change in the status of the nation's foremen from "departmental master mechanics to positions of fully responsible managers and administrators" is noted by an "elder statesman" of our industry, Louis Ruthenburg.

The transformation in the status of foremen, Mr. Ruthenburg says, has taken place during "the most rapid evolution in history"—a 40-year period in which physical, economic, political, and social changes have "profoundly affected every area of industry."

(Concluded on Page 8, Col. 1)

Tax Revisions Give Industry Some Benefits

WASHINGTON, D. C. — President Eisenhower has signed into law the excise tax revision bill and the technical tax revision bill conferring several new benefits on all levels of the industry.

As a result, the 5% tax on compressors, condensers, and other refrigerator components, if sold separately, has been dropped.

The clock portions of thermostats are no longer subject to a 10% retail tax.

Now only household type electric direct motor fans and air circulators will be taxed.

Tax laws have been revised to permit taxpayers a 20% deduction for depreciation the first year on up to $10,000 investment in new or used equipment having a useful life of six years or longer.

The deduction can be applied to machinery, fixtures, or other tangible personal property, but not to buildings, real estate, or inventory purchased after Dec. 31, 1957.

In addition to the 20% allowance, the taxpayer can also take his normal depreciation allowance for the first year.

If the taxpayer files a joint return with his wife for a non-incorporated business, he can take the 20% deduction on the first $20,000 of new investment.

The law extends the carryback of net operating losses to three years rather than two years. It applies to losses in tax-

(Concluded on Page 37, Col. 4)

Cooling Off

Where's Conditioner 'Capital' of World?

Where's the air conditioner capital of the world? For three days last month it lit on Knox St. in Dallas, where six air conditioner dealers went wild selling cooling.

They jazzed up their "capital" with cross-street banners, offered bargain prices, put a "mystery man" on the pavements who gave a silver dollar to selected shoppers who could produce a piece of air conditioning literature, provided a free carcusel for children and

(Concluded on Page 37, Col. 1)

UA, NAPC Suggest Ways To Revise Closed Shop Pacts

WASHINGTON, D. C.—Both the National Association of Plumbing Contractors and the United Association are currently making efforts to eliminate illegal closed shop agreements from labor-management contracts.

At the same time, the National Labor Relations Board has stretched to Nov. 1 a Sept. 1 deadline to get labor-management contracts in compliance with the Taft-Hartley law, where both sides are making genuine efforts to adjust their contracts. Failure to eliminate closed shop agreements could subject both union and management to severe financial penalties.

The United Association, in writing a new pact with members of the National Constructors Association, required employers to recognize the union as a source of qualified and experienced workers, rather than the exclusive source.

The new pact also included a 15-cent an hour wage raise that is expected to set a national pattern for UA.

Peter T. Schoemann, UA general president, told the NEWS, however, that the UA has not yet revised hiring procedures to

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Court Rules on Bid Depository Plan

WASHINGTON, D. C.—Rules of a bid depository, designed to eliminate bid peddling and bid shopping among general contractors, have been upheld in part and condemned in part by a Federal district court in California, according to a digest of the decision prepared by counsel for the National Association of Plumbing Contractors.

The depository was conducted by associations of plumbing, sheet metal, and eletrical subcontractors in Bakersfield, Calif.

"The associations' members were not required to bid through the depository, but those who did bid on a project through the depository, could not place bids on the same projects through other channels, or directly with the general contractors," it was stated in the decision digest.

The digest was prepared after the complete text of the decision was studied by NAPC's legal counsel, the firm of Cann, Taylor, Lamb & Long.

"As a matter of practice," the digest continued, "member subcontractors were said to bid only through the depository on projects handled by that facility. Non-member subcontractors could bid through the depository by agreeing to abide by its rules.

"The antitrust implications of four of the depository's rules were given closest study by the court.

"Three were held to constitute 'price tampering,' and hence to be per se violations of Section 1 of the Sherman Act. The fourth, one that appeared to bring about a boycott, was held to be a reasonable means of eliminating bid peddling and not to violate the law.

"One of the rules that was said to constitute 'price tampering' required that contractors submit separate bids for plumb-

(Concluded on Page 30, Col. 4)

'Above Normal' Seen for West, Southwest

WASHINGTON, D. C. — "Above normal" temperatures will continue throughout the Southwest and the Far West, including most of the Pacific Coast area, through September, according to the U. S. Weather Bureau 30-day forecast.

"Much above normal" temperatures are probable for parts of the Southwest and the California coastal region and for part of the upper Atlantic Coast, the forecast states. "Near normal" temperatures are the prediction for more of the rest of the country, except the upper Great Lakes and lower Mississippi Valley regions, where below normal temperatures are predicted.

Rainfall is expected to exceed normal in the Great Lakes region and in the Southeast, and is likely to be subnormal in the western half of the nation and moderate in the rest of the country.

Code Proposal Would Slow 200 Amp Trend

DETROIT—One of the proposed changes in the 1959 National Electrical Code "will decrease the spread of the 200-amp minimum service trend for residences," according to a recognized authority here. "Two hundred amp minimum service is unrealistic and unnecessary," he insists.

The proposal is one which allows an alternate method for computing required service capacity for residences. Applicable only to one-family residences served by 115/230-volt, three-wire, 100-amp or larger service, the proposal allows the following demand factors:

Air Conditioning and Cooling Including Heat Pump Compressors	100%
Central Electrical Space Heating	100%
Less than four separately controlled Electrical Space Heating Units	100%
First 10 KW of All Other Load	100%
Remainder of All Other Load	40%

The smaller of two dissimilar

(Concluded on Page 37, Col. 2)

Carrier Sales, Profits Up for Third Quarter

SYRACUSE, N. Y. — Carrier Corp. released the following figures for its third quarter ended July 31.

Orders booked, $53,225,000; net sales, $68,279,000; net profit, $2,701,000 or $1.21 per common share.

In the corresponding period last year orders booked totaled $56,514,000 and net sales $67,273,000 with a net profit of $2,158,000 or 95 cents per share of common stock.

The figures for the nine months ended July 31, 1958 are: orders booked, $185,409,000; net sales, $192,591,000; net

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Conferences on Electric Space Heating, Cooling for Farm Homes Set for October

WASHINGTON, D. C. — Two conferences featuring discussion of electric space heating and air conditioning for farm homes will be staged in October.

The Inter-Industry Farm Electric Utilization Council here will hold its fifth annual national power use conference at the Hotel Statler in Buffalo, Oct. 5-7.

One half day will be devoted to a panel discussion led by six house-heating experts on electric space heating. At least nine of 50 exhibit booths will display electric heating products.

The panel discussion will cover resistance heating, heat pumps, proper insulation, sales methods, and establishment of effective standards.

On Oct. 21, the American Institute of Electrical Engineers will spend an entire morning session of its fourth annual farm electrification conference to papers on electric heating and the heat pump.

The conference will be held in the Hotel Moneleone in New Orleans.

L. B. Close of Sunwarm, Inc., Kingsport, Tenn., will discuss "Insulation for Electric Heating" and Fred Ragan of Warren R.E.C.C., Bowling Green, Ky., will outline "System Requirements for the Electric Heating Load."

Troy L. Ingram of the Alabama Power Co. will give "Operating Cost Calculations and Experience with Air-to-Air Heat Pump" and Ralph P. Nix of Southwestern Gas and Electric Co., Shreveport, La., will cite "Experience Records with Heat Pump Equipment in the Arkansas, Louisiana, and Texas Area."

Borg-Warner Suit Asks For Cancellation of York-Shipley Trademark

CHICAGO — Borg-Warner Corp. has filed suit in Federal Court here asking cancellation of York-Shipley, Inc.'s trademarks which use "York" in connection with air conditioning.

Borg-Warner also asks that York-Shipley be enjoined from using the trade-marks, charging that Shipley has tried to pass off air conditioning products and apparatus as having some connection with Borg-Warner.

Better Heating-Cooling Council Meeting Will Hear Plans for Extending Markets

NEW YORK CITY — Three new programs that would "enormously extend" the Better Heating-Cooling Council's hydronic promotional activities into new areas are being studied by special committees appointed in July by the council, it was announced recently.

The new study groups will report at the council's third annual meeting here Nov. 17-19, when their recommendations will be considered for future action or adoption as part of BHC's expanded 1959 hydronics promotion campaign.

One study group is reviewing the industry's marketing practices and considering the need for new and expanded hydronics promotional efforts. Robert W. Williams (advertising and promotion manager, Plumbing & Heating Div., American-Standard) is chairman.

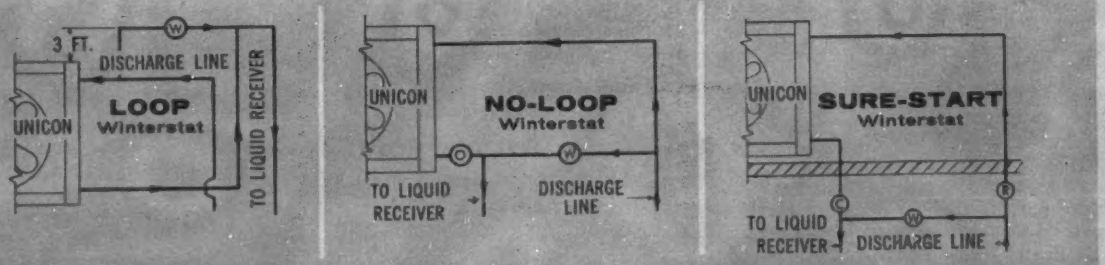
Another study group is investigating the development of a broad wholesaler program to aid wholesalers in promotion and sales of hydronic equipment. The committee is headed by Philip C. Kosch (Bell & Gossett Co.).

The third study group is determining problems and methods of promoting hydronics in the light construction and institutional fields, including schools, motels, churches, and small apartment and office buildings. Henry Gibb (general sales manager, Pacific Steel Boiler Div., National-U. S. Radiator Corp.) is chairman of this committee.

The latter committee was formed following a preliminary study by a smaller group, a subcommittee for light construction and institutional fields, which had operated under the direction of the BHC Builder Cooperative Task Force.

At the same time, it is planned that basic elements of the council's current hydronics campaign will be continued and expanded in 1959. Franklin Greene, BHC executive director, noted that particular emphasis would be given to expansion of the local council system and the builder cooperative program.

IN LOW OUTDOOR TEMPERATURES... competitive units won't work



KRAMER

UNICON + WINTERSTAT ALWAYS WORKS!

When the outdoor air temperature gets low, competitive air-cooled condenser units won't feed ...won't start...won't defrost! KRAMER UNICON plus WINTERSTAT is the only system that works at any outdoor temperature. Ask us to prove it!

WRITE FOR BULLETIN U415A

KRAMER TRENTON CO. Trenton 5, N. J.

45 YEARS OF CONTINUOUS ACHIEVEMENT IN HEAT TRANSFER

Randall M. Snow Resigns as IHACI Managing Director

LOS ANGELES—Resignation of Randall M. Snow as managing director of the Institute of Heating & Air Conditioning Industries was announced by Kenneth Robertson, president of IHACI.

Negotiations are being made for a new managing director.

Snow has wide experience in trade association work, was a member of the executive staff of Heating, Piping & Air Conditioning Contractors National Association, now the Mechanical Contractors: and of the National Anthracite Coal Industry Association.

Prior to coming to IHACI last year, Snow was with Walker Mfg. Co. of Racine, Wis.

Discharged Discharges At Discharger

OAKVILLE, Tenn. — A few days after Steve E. Osborn, Memphis refrigeration and heating contractor discharged an employe, the former installation man discharged a shotgun at Osborn, also hitting another employe.

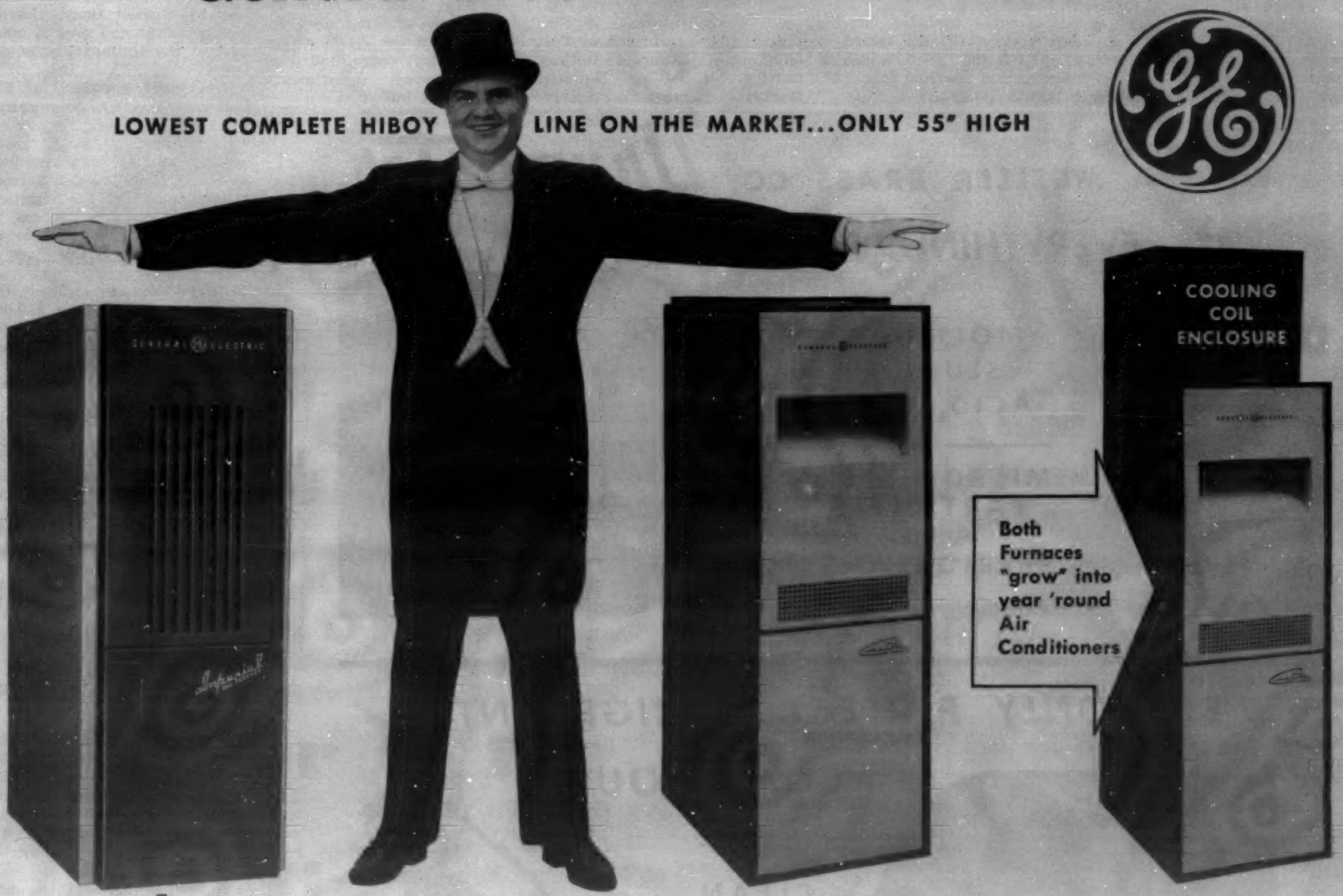
Osborn and two of his men had just completed an air conditioning service call at a drive-in restaurant when the former employe drove up. The man got out of his car with a shotgun in his hands.

Saying only "Now, who's a coward?", he fired three times, hitting Osborn in the legs and one employe just below the groin. Then he jumped in his car and drove away.

Fashions in Furnaces
by GENERAL ELECTRIC

You'll do a HANDSOME BUSINESS with this line of PROFITABLE ALL-NEW General Electric Gas Furnaces

LOWEST COMPLETE HIBOY LINE ON THE MARKET...ONLY 55" HIGH



NEW *Imperial* LINE

The Imperial is General Electric's premium quality furnace! It combines all the finest safety, engineering and design features:—famous cast-iron "Pinpoint" heat exchanger for quicker, more economical heat—General Electric's unmatched ten-year warranty—simplified wiring—quiet performance—rugged construction—two-tone gray styling. No need to hide this handsome furnace—it's as smart as an ultra-modern kitchen appliance. Smallest unit takes only 21"x30⅛" of floor space. Better still! The Imperial easily "grows" into year 'round General Electric Whole-House Air Conditioning. BTUH input: 90,000 to 210,000, upflow—75,000 to 150,000 downflow.

NEW *Custom* LINE

Ideally priced for the builder market and for the profitable modernization and replacement market. Smallest unit takes only 15"x28" of floor space. Minimum clearances approved by A.G.A.: sides, rear and combustible flooring, zero clearance—front and flue, only 6"—above plenum, only 1". Ideal for closet installation. Simplified wiring, quiet blower, advanced cast-iron burner design, "Thermal-Trap" heat exchanger with ten-year warranty. Priced competitively to profit you. Two types—one for normal heating and air conditioning; one for above-average cooling loads. Both types "grow" into year 'round Whole-House Air Conditioning. BTUH input: upflow and downflow, 75,000 to 150,000.

OPERATION upturn — Build sales and jobs in '58 — GENERAL ELECTRIC

OPERATION UPTURN means General Electric will go all out to accelerate an upturn in business in 1958. It will help boost dealer sales and profits. So get in on the ground floor! For complete details of OPERATION UPTURN and a General Electric franchise, call your nearest General Electric Heating and Air Conditioning distributor—listed in the yellow pages of your phone book—or mail coupon. General Electric Company, Air Conditioning Department, Tyler, Texas.

GENERAL ELECTRIC

AIR CONDITIONING DEPARTMENT TYLER, TEXAS

General Electric Company ACD 16
Air Conditioning Dept., Tyler, Texas

I would like complete information on the General Electric Air Conditioning Department Franchise—and OPERATION UPTURN.

Name_____

Firm Name_____

Address_____

City_____ Zone____ State_____

FHA Plans Housing Evaluation Parley Ike Slows Flow of Mortgage Money

WASHINGTON, D. C. — Recent developments on the housing front include:

• Call by the Federal Housing Administration for an industry advisory committee meeting sometime this month to review housing evaluation concepts in the light of increased desirability, land planning, and quality products that reduce maintenance expenses.

Among those invited to attend are Charles K. Rieger, vice president and general manager, Appliance and Television Receiver Div., General Elcctric Co., and Joseph E. Grazier, president, American Radiator & Standard Sanitary Corp.

• An order by President Eisenhower to the Federal National Mortgage Association (Fannie May) to end purchases at par of mortgages of up to $13,500 on new construction insured by FHA or guaranteed by the Veterans Administration.

This is interpreted as virtually ending the government's anti-recession housing program. It was done to save money.

Effect, some believe, will be to slow the flow of veterans and FHA mortgage money.

• A 26% gain over last year in dwelling unit contracts awarded during July and a 21% gain in dollar volume of such contracts, according to the F. W. Dodge Corp.

Contracts awarded during July totaled 121,023 valued at $1,557,443,000. Non-residential construction awards rose 12% to $1,076,034,000.

California Grocers Study Refrigerated Egg Bill, Ready Fixture Fair, Oct. 5-8

SAN FRANCISCO—Proposed legislation requiring that eggs must be kept under refrigeration at all times will be considered, along with other business, at a special meeting of the board of directors of the California Grocers Association here Sept. 8-9.

The report to the board will say the program for the 59th annual convention at Palm Springs Oct. 5-8 has been completed, and all space sold for the Food Fixture Fair.

Among the exhibitors are: Friedrich Refrigerators, Inc.; C. V. Hill & Co.; Warren Co., Inc.; Weber Showcase & Fixture Co., Inc.; Hussmann Distributors of California; McCray Refrigerator Co., Inc.; National Market Equipment Co.; Sherer-Gillett Co.; Tyler Refrigeration Corp.; and Zero Cold, Inc.

Latest refrigerated vending machine models will be displayed Coca-Cola Co., Nehi Corp., and Pepsi-Cola Co.

G-E Calls Back More Employes

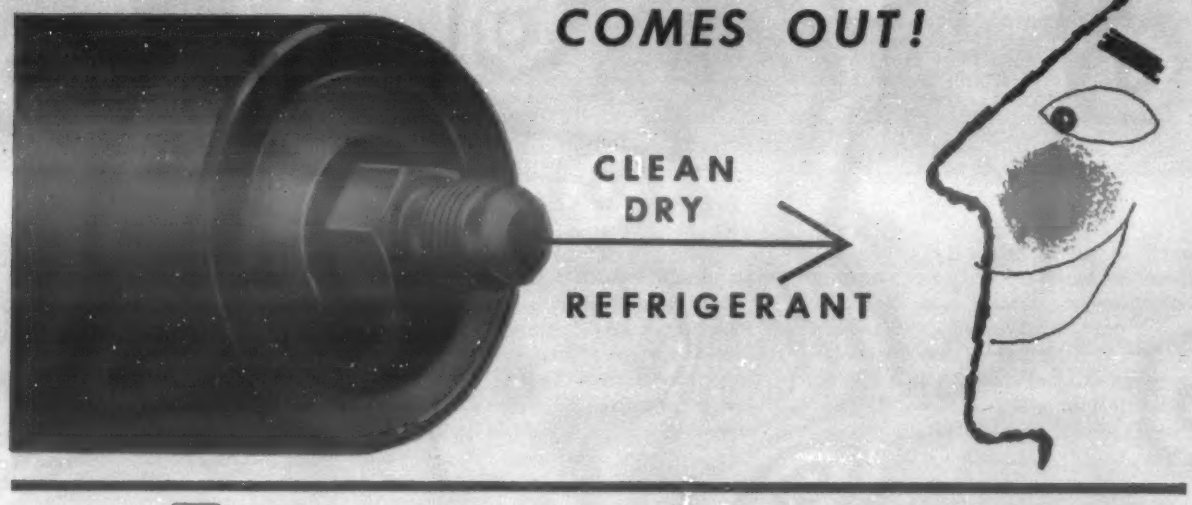
LOUISVILLE, Ky.—Recall of 175 employes and plans to call back 350 more by mid-September were announced by General Electric Co.

Reviving sales of major appliances are creating need for more men in the refrigeration, home laundry, range, and dishwasher - disposal departments, the company indicated.

WITH A MUELLER BRASS CO. Drymaster

EVERYTHING GOES IN . . .

BUT ONLY PERFECT REFRIGERANT COMES OUT!



THE NEW Drymaster

is the most perfectly balanced filter-drier you can buy because it gives both superb filtering and superb drying without sacrificing one for the other. Three design features provide the key to DRYMASTER'S outstanding performance . . . "Hi-Fi" filter block desiccant . . . super-fine monel screen filter tube . . . and inlet distributor disc. There are 34 different sizes in both male flare and solder end connections in a wide range of capacities to fit any job requirement. Available now at better wholesalers everywhere.

WRITE TODAY FOR YOUR *FREE* SLIDE-GUIDE... Select the correct DRYMASTER for every installation quickly and easily.

254

MUELLER BRASS CO. PORT HURON 13, MICHIGAN

Tulane '69

$10,000 Prize To Send Salesman's Son to College

SYRACUSE, N. Y.—A red headed father of two from New Orleans has won a $10,000 all expenses paid college education for one of his youngsters in a nationwide "Icemaker" sales competition conducted by Carrier Corp. among its dealer-salesmen.

Edward "Red" Marquez of Edward Marquez Co. was announced as the winner in the "Prize Future Unlimited" contest by Russell Gray, Carrier vice president and general manager of the Unitary Equipment Div.

The lucky recipient of the four-year college education prize is Marquez' 10-year-old son Hudson, a sixth grade student at the John Audubon school in New Orleans. Termed a good pupil by his teachers, Hudson already has plans to enter Tulane university seven years from now in the Class of '69.

At the time of enrolment, the youngster will receive $10,000 from a fund in his name at the Chase Manhattan Bank of New York. This is expected to cover tuition, books, board, and other expenses.

Gray will make the formal presentation at a luncheon in New Orleans Sept. 12. At the same time Louis Busenlener, of Industry Sales Corp., local Carrier distributor, will be tendered the Vice President's Cup as top distributor in Carrier icemaker sales. Michael J. Kane, manager of the company's Icemaker department, will present the award.

Atlanta ASRE, ASHAE Hold Joint Meetings

ATLANTA — Announcement was made that Atlanta chapters of the American Society of Refrigerating Engineers and the American Society of Heating & Air-Conditioning Engineers will hold joint meetings during the fall of this year.

A spokesman said the first one was scheduled for Monday night, Sept. 8, at the Architects & Engineers Institute, 230 Spring St., NW, with Bernard B. Rothschild, member of the firm of Alexander-Rothschild, architect, as the principal speaker.

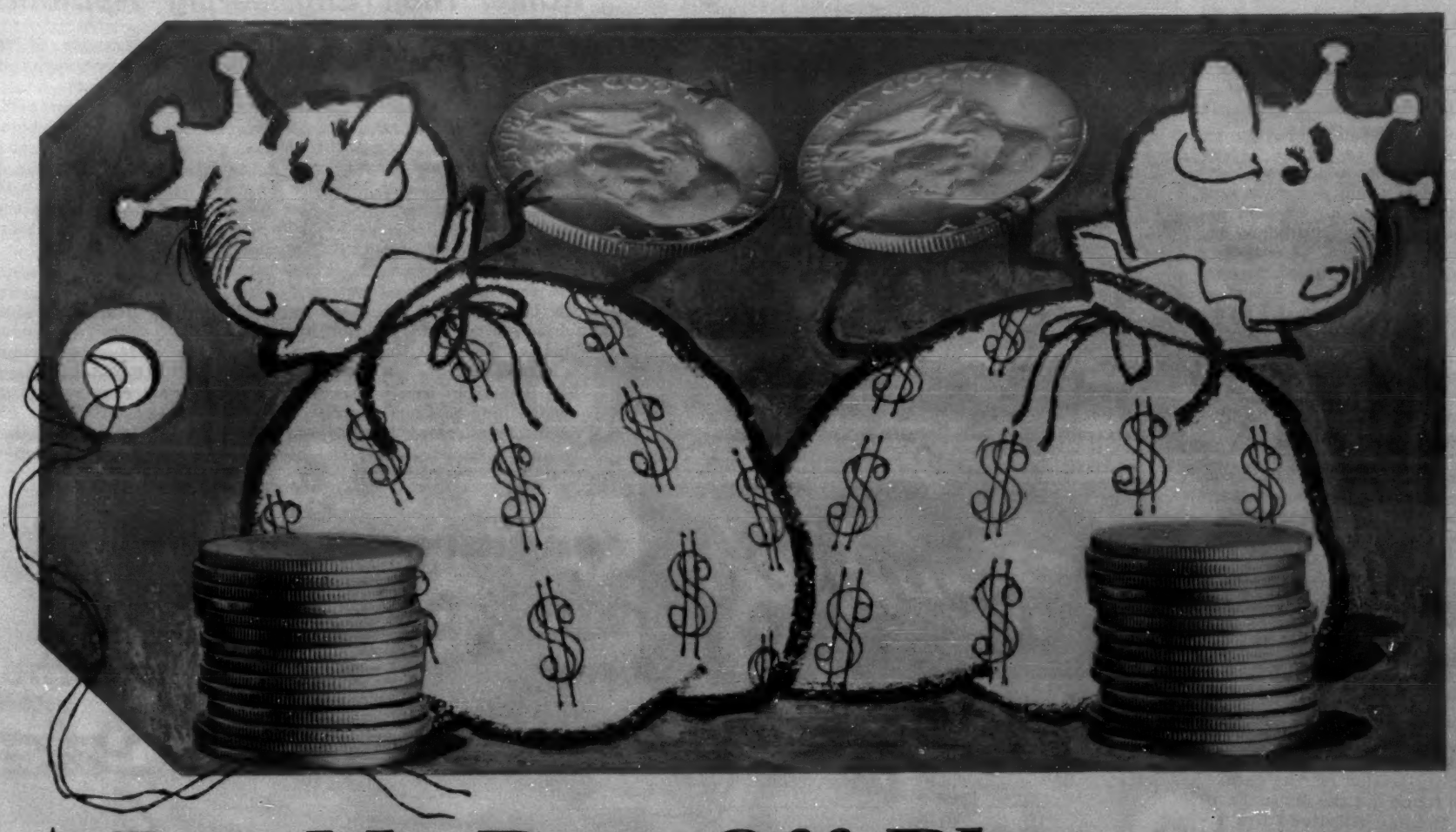
St. Louis Supply Firms Sign Teamster Contract

ST. LOUIS—After a strike of warehouse employes and truck drivers lasting less than a week, 18 plumbing supply houses here and Local 688 of the Teamsters Union signed a two-year contract.

The contract provided for a 10-cent hourly wage increase last July 1 and another 10-cent increase starting next July 1. It also provided for additional sick leave and a pension plan to start next year.

About 100 employes are affected.

NEW PRICE POLICY!



★Double Pay-Off Plan

ups your profit on

Now, with Airtemp's new Double Pay-Off Plan you get paid twice—once at the time of sale, and once by Airtemp with Airtemp's new Pay-Off Certificates.

The value of your Pay-Off Certificate will depend on the furnace or air conditioner you sell. But here's the important thing—you can use your Airtemp Pay-Off Certificates just like cash when you order new equipment.

This Double Pay-Off Plan helps you meet price competition and still make a fair profit. There are many other good, sound reasons, too, why Airtemp dealers make money—

- Airtemp's trouble-free operation cuts service calls, lets you *keep* your initial sale profit.
- Airtemp's really complete line—297 models. You can satisfy any customer.
- The prestige of the Chrysler name and Chrysler's famous engineering.
- Sales, engineering, service and business-operation training at Chrysler Corporation Service Centers.
- Pre-tested merchandising aids and incentive plans. Factory advertising in your local market.

CHRYSLER

DO MORE BUSINESS WITH AIRTEMP—
THE FORWARD LOOK IN AIR CONDITIONING

Airtemp

AIRTEMP DIVISION, CHRYSLER CORP.
DEPT. AC-9-58, DAYTON 1, OHIO

Please send me full information on an Airtemp franchise.

NAME.....

ADDRESS.....

CITY.....*ZONE*.....*STATE*.....

2-Stage System Cools Home; Gas-fired Boiler Furnishes Hot Water for Heating

FORT LAUDERDALE, Fla. —A two-stage system met a local man's demand for air-cooled water chilling as the core of an air conditioning system in his new home, it has been reported.

Drayer-Hanson product was selected to fulfill year-round air conditioning requirements, according to Paul M. Bradley, Jr., prominent Fort Lauderdale architect, who designed the new R. P. Collins residence here—a $42,000 project, exclusive of air conditioning.

Basically a manufacturer of commercial-industrial air conditioning equipment, Drayer-Hanson was one of the few manufacturers to meet the requirement, says Bradley.

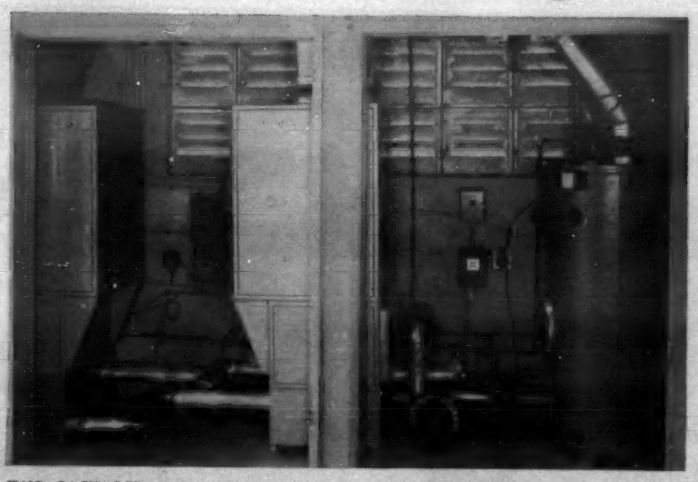
As noted, the installation was set up to operate as a two-stage system—a 3-hp. packaged water chiller as the first stage, with a 2-hp. unit automatically pulled in as required for maximum cooling.

Another feature allows a gas-fired boiler to furnish hot water for heating through the D-H packaged chillers, as well as meeting domestic hot water requirements.

To insure optimum quiet the planner positioned equipment in a utility section off the garage.

To round out the unusual project, Bradley indicated a Drayer-Hanson air handler (HHV-110 —1,400 c.f.m.) was located in a utility area off the kitchen, while a concealed D-H fan-coil HRC unit was positioned in the attic space above the second floor of the Collins home. Both allowed for a flexible zoned system.

Contracting engineer on the project was C. Mehder Co., Ft. Lauderdale. Sanders & Hollander, Miami, represented Drayer-Hanson in the sales transaction.



TWO PACKAGED water chillers and gas-fired boiler were installed in utility area off the garage to assure optimum quiet.

Auer Register Elects Charles Smith President

CLEVELAND — Charles C. Smith has been elected president of Auer Register Co., manufacturer of registers and grilles for heating and heating-cooling systems.

Smith comes from Erie, Pa., where he has been consultant to the president, and general manager of the special products division, of Lord Mfg. Co.

First Half Phoenix Sales Top Last Year by 84%

PHOENIX, Ariz. — A survey of the trading area of the Appliance Merchandisers Association here showed that in the first six months of this year, sales of central air conditioning units zoomed 84% over the like 1957 period and room air conditioner sales were up 6%, according to William H. Johnson, Jr., AMA manager.

For Your Reprint Copy

"Emergency Diagnosis, Repair of Hermetic Unit Electric Components," by John L. Zant, mail this ad with your name and address to: Air Conditioning & Refrigeration News, 450 W. Fort, Detroit 26, Mich.

Only 25¢ each.

For Selling Homeowner

Amana To Use 'Merchandising' Rather Than 'Engineering' Approach

AMANA, Iowa—With the appointment of a new national sales manager for central air conditioning, Amana Refrigeration, Inc. is inaugurating a stepped-up central air conditioning sales program "based on a merchandising, rather than an engineering, approach to the public."

The new national manager, David B. Ruthstrom, describes the program as "an effort aimed at the existing house market, where we can find 90% of our business potential."

Ruthstrom, 29, of Metairie, La., points out that central air conditioning is usually sold by engineering-trained men whose technical explanations of the needs and advantages of the product appeal principally to architects and builders.

"In the existing home field," says Ruthstrom, "it is the homeowner and his wife who must be sold—and they do not have an engineering or building background. That means we talk to them in terms they can understand."

So that Amana's sales representatives will know the technical side of the firm's central air conditioning units, Ruthstrom has set up a 14-week training course by mail. After Amana's own personnel complete it, the course will be offered to distributors and dealers and their employes.

COMPLETE APPLICATION FLEXIBILITY.....

This "panoramic view" illustrates the scope of Tecumseh's 1959 line of air conditioning compressors — unquestionably the most complete in the industry! Your choice from among these basic 16 compressors should hit your specific application on the button. Greater flexibility is possible in the design of machine compartments. Compactness with top capacity has been engineered into these new models. And, typical of Tecumseh product development, the new pancakes offer a major price saving over previous models.

Already widely used in portable air conditioners, the Model AR26 Pancake answers the need for a low cost, small size, minimum weight compressor for portable air conditioners. The new AU Pancake Series expands the application potential and desirable features of this popular shell design to larger horsepower sizes. The AU series provides high speed, one horsepower compressors with a range of electrical and capacity characteristics including 7½ and 12 amp models.

A complete line of twin cylinder models starting at 1 HP include a 12 amp model, two special 50 cycle models and the biggest capacity Twin on the market. Of course, within these models, variations in mounting, parts, tubes, electrical characteristics, etc. are available. Whatever your requirements may be, the Tecumseh 1959 line of Air Conditioning Compressors will meet them. Investigate today.

Aluminum-Tube Coils 'of Even Minimum Design' Found Suitable for Room Unit Evaporator Service

MINNEAPOLIS—A series of field tests with window air conditioners has shown that aluminum-tube coils "of even minimum design" are suitable for evaporator service.

Favorable results were obtained with properly designed aluminum tube coils. Various modifications of air conditioner design enhance the performance of aluminum tubing.

Assemblies with a high resistance to corrosion are required for severe service of hot, wetted condenser coils.

These findings were reported at the 54th annual meeting of American Society of Refrigerating Engineers by A. J. Haygood, sales development division, Alcoa Research Labs.

"The cold evaporator coil is exposed to the cleaner room air and the relatively pure condensed water from the air," Haygood explained. "But the hot condenser coil is exposed to the outside atmosphere and a spray of condensate that has picked up impurities since leaving the evaporator.

"In one design tested, the lower band of condenser tubes was actually immersed in condensate liquid. Then, evaporation of the condensate on the condenser creates another problem—deposits on the coil with resulting localized corrosive attack."

Describing the test sites about the country at which the units were tested, Haygood emphasized that units were often rotated from one position to another to assure that all units were exposed to the same total environment. Periodic measurements were taken to determine any failures or loss of cooling capacity.

Tests ran for two years of continuous operation—"equivalent to about eight years' normal service."

Upon completion of the service tests, units were examined in careful detail. Some of the findings:

Inside surfaces of tubing showed no significant attack due to exposure to refrigerants.

Very slight attack on cold evaporator coils.

About half of the condensers developed leaks during the last eight months of testing—the majority of failures occurring in return-bend areas outside the fin pack.

Most pronounced corrosion occurred on those regions of the condenser coil which were wetted by condensate. "These regions determined by the action of the slinger-ring were the front of the coil facing the fan, the ends of the coils, and the lower and upper bands of tubes."

Only units *having non-clad aluminum tubing* and standard 1100 alloy fins showed critical corrosion of tube in the fin pack.

Haygood took time to define the aluminum alloys tested. "The basic alloy combination for all-aluminum coils consists of non-clad 1100 alloy tube and 1100 alloy fins. (3003 and 5050 alloys are alternates for tube.)

"Alclad 3003 tube, consisting of 3003 core and an outside cladding of 7072 alloy was selected for one set of test units. The 7072 cladding is anodic to the 3003 core, and offers electrochemical protection to the core alloy," Haygood explained.

In still another modification, 1100 alloy tube was used with 7072 alloy fins — an arrangement considered more economically attractive than the use of clad aluminum tube.

On the subject of protective coatings, Haygood emphasized the extreme difficulty of completely protecting coils which have a "multitude of hidden crevices between the fin collars and tube that preclude application of a uniform protective coating. Return-bend areas are accessible for paint coverings."

Test units were coated with chemical conversion coatings and conventional black paint.

Chemical conversion coatings were "found ineffective in providing protection to return bends."

Paint-over-chemical-conversion-coating "generally provided good protection to return bends. On a few turns where the paint film had been damaged, however, severe localized attack occurred.

"Tubes in the fin pack apparently did not receive long-lasting protection from either chemical conversion or paint coatings."

To avoid complications due to dissimilar metals, all contact of aluminum with copper or copper salts was avoided. When such items as thermostat covers on the evaporator end were not protected, "it appeared that even these small items should have been masked."

CAPACITIES FROM 5050 TO 24,000 BTU

Model AR26 — ½ HP — 5050 BTU (115 v)
Model AU14 — 1 HP — 7050 BTU (115 v-7½ amp)
Model AU1612 — 1 HP — 10,000 BTU (115 v-12 amp)
Model AU1612 — 1 HP — 10,000 BTU (230 v)
Model AU1P12 — 1 HP — 11,900 BTU (208-230 v)
Model B1616 — 1 HP — 11,700 BTU (Special 50 cycle)
Model B1616 — 1 HP — 14,000 BTU (230 v)
Model B32S16 — 1½ HP — 12,150 BTU (115 v-12 amp)
Model B32P16 — 1½ HP — 17,400 BTU (208-230 v)
Model B32T16 — 1½ HP — 16,250 BTU (Special 50 cycle)
Model B74T16 — 2 HP — 19,500 BTU (208-230 v)
Model B21U18 — 2 HP — 24,000 BTU (208-230 v)

1. All rating figures are nominal with acceptable limits or minus 5%. 2. Conditions:
130° F. condensing temperature
45° F. evaporator temperature
95° F. return gas
95° F. ambient
115° F. liquid temperature entering expansion valve

R-12 models based on 180 p.s.i.g. head pressure, 42 p.s.i.g. suction pressure.

R-22 models based on 300 p.s.i.g. head pressure, 77 p.s.i.g. suction pressure.

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CANADA: Tecumseh Products of Canada Limited, 1667 Dundas St., London, Ontario.

Ottoman Conceals Room Conditioner

BOCA RATON, Fla. — An ottoman concealing a 1-ton air conditioner is being manufactured here by Bernard Castro, Fort Lauderdale manufacturer of convertible furniture.

The thermostatically controlled cooler is mounted on castors. The ottoman that conceals it measures 27 in. long, 23 in. wide, and 18 in. high. Castro said the unit would retail for less than $300.

Philadelphia Distributor Sales of Air Conditioning Hit 5,911 Units In July

PHILADELPHIA — Distributor sales of air conditioners to dealers in this area in July soared to 5,911 from 2,943 a year earlier, according to the Electrical Association of Philadelphia.

However, sales for the first seven months of this year lagged behind the like 1957 period, totaling 41,507 compared with 45,486. The report covers sales in Bucks, Chester, Delaware, Montgomery, and Philadelphia counties.

Looking for a Business to Buy . . . ?

Check the Business Opportunities Section in the classified advertising columns.

Inside Dope

By GEORGE F. TAUBENECK

(Concluded from Page 1, Col. 1)

Even greater, faster changes lie ahead, he predicts in these words:

"Scientific, technical, and industrial progress advances in geometric progression. Every door that is opened by new discovery or invention discloses additional doors that demand to be unlocked.

"Automation is moving ahead by leaps and bounds. It is an inevitable step in the never-ending march of the industrial revolution. Basically, automation is simply the application of machines to control machines. If, today, the average industrial worker commands mechanical power equivalent to the strength of 100 men, automation will many times multiply the extension of his power.

"The economic pressure of competition gives management the incentive for automation. New developments in mechanism and electronics provide the physical facilities. The retained earnings of industry and the savings of millions of people supply the financial wherewithal.

"Enormously increased investment incident to automation tends to stabilize the economy. Costly plants operated below capacity generate enormous losses. Modern management, therefore, has compelling incentive to stimulate sales and to avoid shut-downs. Machines cannot be laid off. They are permanently on the payroll."

Peering into the future of scientific developments for industry, Mr. Ruthenburg declares that electronics, atomic energy, and solar energy hold potentials for progress far beyond the present limits of imagination.

Successful solution of the problems arising from momentous change in the nation's economy require enlightened and progressive foremanship and even-better industrial management.

Refrigerated Girls

Recent visitor to the United States, Dr. P. H. Lugeon of Switzerland, declared he was more impressed with American refrigeration than with its skyscrapers.

"Your meat and vegetables are frozen," he said. "Your milk and beer is nearly frozen. Even your young ladies seem refrigerated."

Too True

Larry Lane predicts that magazine failures "will increase as the squeeze on profits increases." Likely candidates, in his opinion are recently-established publications.

"All it takes to start a magazine nowadays," he mused, "is a would-be editor, a hungry printer, and a third martini."

No matter what major is listed on a graduate's sheepskin, he's too much inclined to want to run things right away, according to employe recruiters.

"College graduates these days don't want to go up through the chain," states M. R. Stearns of Varian Associates.

"However, some are fairly patient, and don't want to run the company until they have had two years of experience."

Forgotten Man

Forgotten man in most sales and promotion programs is the customer *now* on the books, according to Orville Reed of Howell, Mich.

We think in terms of prospects, of "new" business. There is certainly nothing wrong about new business. But the "prospect" we would miss the most is the customer already on the books who doesn't return for his usual order.

Reed adds, "Your customers are prospects. They're your competitor's best prospects."

Invest in developing new business, yes—but be sure you also promote the other guy's prospects. . . . Your present customers. They're the "returns" that really count.

Marketing's Future Needs

Changing economic conditions call for a new order in the field of marketing management, John G. McLean has advised the American Marketing Association.

The modern marketing manager must be "artist, scientist, realist, innovator, and our first line of defense in maintaining the present economic order," he posed.

"We cannot sing the praises of free, unfettered business competition and, on the other hand, seek the pseudo-protection of so-called fair trade laws, excessive restraints on foreign imports, and government support of agricultural prices at unrealistic levels.

"Nor can we clamor for reductions in taxes and Federal spending and at the same time plead for government building programs to stimulate trade in areas where we do business. These are inconsistencies which the public will not accept as a steady diet."

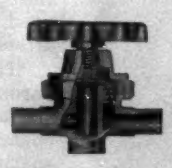
Modern marketing managers must realize that much of the pressure for government intervention and control comes, unwittingly, from within our own ranks.

All too often when competitive pressures become a little more painful than usual, businessmen generally are inclined to run to Washington for some kind of Federal protection of control.

Each group, of course, wants only a little bit of help—at the points where it is experiencing competitive pressure or having other difficulties — and vigorously resists government intervention in other areas.

In the aggregate, this adds up to a tremendous clamor for Federal intervention and control —here, there, and everywhere in our economic life.

MORAL: Don't run for help; be independent!

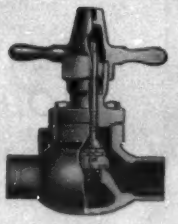


"Golden Bantam" Packless Valve—Type 516

A small packless line shut-off valve with ¼" thru ⅝" flare, O.D.S. or extended end solder connections. Also "Blue Bantam" and "Standard" Balanced-Action packless line shut-off valves with ¼" thru ⅝" Fl. and ¼" thru 1⅛" O.D.S. size connections.

Cross-Vu® Hermetic Seal Liquid Indicator—Type LI-16

Brass indicator with glass fused directly to metal body. Maximum working pressure 500 P.S.I. Connection sizes: ¼" thru ⅝" M.Fl., M.Fl. x F.Fl. or with extended ends and solder connections.



Wing Cap Packed Valves—Type 203

The standard of the industry. Bronze alloy with O.D.S. connections in sizes ⅛" thru 4⅛" (Globe) and ⅜" thru 3⅛" (Angle). Also semi-steel with ½" thru 2½" F.P.T. connections and semi-steel flanged type globe and angle valves with brass O.D.S. or steel butt-weld adapters, and one piece socket weld or F.P.T. flanges in a wide range of sizes from 1" to 5⅛".

HENRY *for low installation cost*

Angle Relief Valve—Type 52

UV ASME—NB—National Board Certified

Forged brass automatic pressure relief valve. Pressure setting range 50 to 450 P.S.I. Size connections: (M.P.T. Inlet x Flare Outlet) ¼" x ⅜", ⅜" x ⅜", ⅜" x ½" and ½" x ⅝". Also ⅝" O.D.S. x ⅝" O.D.S.

"DRI-COR" Filter-Drier—Type V800

Ceramic fired desiccant filter-core in bed of granular desiccant—a blend of molecular sieves and activated alumina. Provides high capacity drying even at relatively high temperatures, micronic filtration, efficient acid removal and low pressure drop. Pressure sealed. Wide range of sizes with ¼" thru ⅝" Fl. connections. "DRI-COR" Filter-Drier Cartridges also available for Henry Cartridge Type Angle Driers.

"Y" Strainer—Type 895

Flanged design permits cleaning without removing strainer from line. Screen cylinders securely located by spring tension preventing by-passing of refrigerant. Forged brass end caps with integral end connections. Screen area: 10 thru 150 sq. in. Size connections: ⅞" thru 4⅛" O.D.S. Angle and straight-through type strainers also available.

Write for catalogs describing the complete line.

Catalog 103 Valves, Driers, Strainers and Accessories.

Catalog 202 Ammonia Valves and Accessories.

Catalog FF Forged Carbon Steel Fittings.

HENRY VALVE CO. CONTROLLING FLOW SINCE

HENRY VALVE COMPANY

Manufacturers of Valves, Driers, Strainers, Fittings and Accessories for Refrigeration, Air Conditioning and Industrial Applications.

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Get your copy

Operating Costs of Residential Air Conditioning and What This Means to Dealers and Installers. By R. A. Gonzales—25¢ each.

Mail this ad with your name and address to: Air Conditioning & Refrigeration News, 450 W. Fort St., Detroit 26, Mich.

Midwest Educational Conference Scheduled for St. Louis Oct. 9 to 11

ST. LOUIS—The 10th annual educational conference of the Midwest Association, Refrigeration Service Engineers Society, will be held at the Sheraton-Jefferson hotel here Oct. 9-11, it has been announced.

Following registration Thursday afternoon, Oct. 9, the conference will get underway Friday morning with the invocation, welcoming remarks, and two talks.

Scheduled for Friday afternoon are two talks, a question-and-answer period, and a soldering contest. Saturday's program calls for three talks at the morning session and two in the afternoon plus another question-and-answer period.

Following is the complete program for the educational sessions:

FRIDAY, OCT. 10

9 a.m.—Conference call to order. Moderator—G. L. (Bud) Easley.

Invocation—Chaplain (Major) Ivan C. Ross, Regimental Chaplain—138th Regiment, St. Louis.

Welcome to St. Louis — Herman Spoehrer, vice president, Sporlan Valve Co., St. Louis, on behalf of Air-Conditioning & Refrigeration Institute; S. Nill (Nip) Mohler, Jr., president, R. E. Thompson Co., St. Louis, on behalf of Air Conditioning & Refrigeration Wholesalers.

10 a.m.—"Servicing Motor Capacitors and Relays," Chester Curry, St. Louis.

11 a.m.—"Pitfalls In Insulating Air Conditioning Systems," Lawrence (Red) Clark, Research & Development Center, Armstrong Cork Co.

1:30 p.m.—"Installing and Servicing Controls for Heating and Cooling Systems," J. Roy Wheeler, General Controls Co.

2:30 p.m.—"Maintenance Contracts," Orin Hutchins, Carthage, Mo.; James Manahan, St. Louis.

3:30 p.m.—Question-and-Answer period. A panel of experts will answer questions.

4:30 p.m.—Soldering contest sponsored by Mueller Brass Co., W. W. (Bill) West, conductor.

SATURDAY, OCT. 11

9 a.m.—"Problems Associated with Electrical Distribution Systems," Ernest A. Fischer, Union Electric Co.

10 a.m.—"What Happens to a Heating System When Cooling Is Added," Walter Weiss, product application engineer, American Furnace Co.

11 a.m.—"Automobile Air Conditioning," C. Dale Mericle, associate editor, Air Conditioning & Refrigeration News.

1:30 p.m.—"The Relationship of Servicing and Installation Practices to Factors Affecting System Stability," John Bopp, manager, technical services, Refrigeration Sales Dept., Ansul Chemical Co.

2:30 p.m.—"What the Manufacturer Expects of You, What Your Customer Expects of You, and Your Responsibility to Your Customer," Gene Hamilton, service manager, Worthington Corp., East Orange, N. J.

3:30 p.m.—Question-and-Answer period.

Code Classes Open In Los Angeles Sept. 17, 18

LOS ANGELES — Open to those in the "pertaining trades," a course will be offered during the fall semester giving instruction in code and ordinance requirements regulating safety, design, and construction of heating, ventilating, air conditioning, and refrigeration installations in Los Angeles.

Classes are part of the trade extension program of Los Angeles Trade-Technical Junior college.

Hal Fitzgerald of the Heating & Refrigeration Div., Los Angeles Dept. of Building & Safety, will be instructor for the code class to be held from 6:30 to 9:30 p.m. every Wednesday beginning Sept. 17 at 9700 Sepulveda Blvd.

F. Gieser of the same division will be instructor for the code class to be held from 6:30 to 9:30 p.m. every Thursday beginning Sept. 18 at 400 West Washington Blvd.

Those desiring to attend this 3-unit course should report directly to the class room for registration on the evening of the first class. Student fee is $2.50 for the semester.

Details concerning a code class for the San Fernando valley area will be announced later.

York Trainer Now Available To Colleges, Technical Schools

YORK, Pa. — Although originally designed for exclusive use in the York Institute of Air Conditioning and Refrigeration, the York Div. of Borg-Warner Corp. is now offering to colleges and technical schools, a visual demonstrator of the basic refrigeration cycle.

Refrigeration is easy to understand with a York Trainer, according to C. J. Brillinger, director of the York school where selected groups of college graduates are given intensive training courses in air conditioning and refrigeration prior to assignment to positions within the company.

The so-called Trainer is a scientifically accurate working model of a refrigeration system, complete in every respect.

The unique design of the glass evaporator, condenser, low pressure receiver, high pressure receiver, and inter connecting piping frames a clear picture of the cycle. All piping is color-coded to show refrigerant flow.

Such quantitative considerations as system capacity, superheat, refrigerant flow rate, etc., may be determined since the Trainer is equipped with refrigerant flowmeter and strategically located thermometer wells and suction and discharge pressure gauges.

The entire system mounted on a sturdy satin-black steel panel weighs 240 lbs. and measures 81 in. high by 36 in. wide by 20 in. deep.

Roy C. Perryman Dies

MEMPHIS — Roy C. Perryman, 61, retired refrigeration engineer, died recently at Kennedy Veterans hospital.

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best reason in the world for using

genetron®
SUPER-DRY
REFRIGERANTS

"Genetron" Refrigerants are the ultimate in dryness. In "Genetron" 12, for example, there is less than one-thousandth of one percent of moisture! And the tight specifications for "Genetrons" are consistently *bettered* in production. That's why smart service engineers everywhere are insisting on Super-Dry "Genetrons."

Service? No matter where you are there's a "Genetron" wholesaler as near as your telephone. Make *your* next order—*"Genetron."*

QUICK FACTS on GENETRON Super-Dry Refrigerants

- Guaranteed exceptionally low moisture content.
- Noncorrosive to standard equipment materials, nontoxic, nonflammable, stable, safe.
- Critical and freezing points well outside range of operating uses.
- Solvent action on oil helps prevent solidification or congealing of lubricant; aids in lubrication of equipment; generally miscible with oil.
- Freely interchangeable and may be mixed in any proportions with comparable fluorinated hydrocarbons meeting the same strict refrigerant specifications.
- Available everywhere, from refrigeration wholesalers throughout the country.

GENETRON 11 ORANGE LABEL CCl_3F
Trichloromonofluoromethane

GENETRON 12 WHITE LABEL CCl_2F_2
Dichlorodifluoromethane

GENETRON 22 GREEN LABEL $CHClF_2$
Monochlorodifluoromethane

GENETRON 113 PURPLE LABEL $C_2Cl_3F_3$
Trichlorotrifluoroethane

GENETRON 114a BLUE LABEL $C_2Cl_2F_4$
Dichlorotetrafluoroethane

Allied Chemical

GENERAL CHEMICAL DIVISION
40 Rector Street, New York 6, N.Y.

30% Make Less Than Top Employe

Heating Contractor's Low Return Often Result of Improper Computing of Overhead Expense

By George M. Hanning

DETROIT—Thirty per cent of heating and plumbing contractors are not making as much money as their top employe, W. G. West, retailer representative for American-Standard, informed the Detroit Warm Air Heating Association recently.

"If you don't believe it," West declared, "figure up how many hours you put in on the job each year and divide that total into your net income. See if you are making as much money per hour as your highest paid employe."

Twenty per cent of heating and plumbing contractors, he added, are not making a sufficient return on their money. They ought to be able to make as much on the net worth of their business as they could by investing the same money in bonds.

Currently, they could get 4% to 5% on their investment by clipping coupons without the grief and risk of operating a business, he said.

To get a fair profit, West declared, the contractor must plan for it. An intelligent estimate can be made only when all overhead costs are known and figured in the job quotation. Then allowance must be made for the margin of profit desired.

Although failing to price his goods and services properly can sometimes be attributed to incorrect estimating of materials and labor, more frequently it is caused by the retailer's lack of knowledge of his actual overhead expenses.

No matter how small a business may be, it does have overhead expenses, West pointed out.

Even a contractor working by himself out of his own home has overhead expenses, he noted. He should consider all of his unproductive time — that which he cannot charge to a particular job—plus the cost of operating his car, and a share of the rental and utilities of the home as overhead.

Many contractors go wrong because they confuse markup on selling price, West asserted. Overhead, he noted, is figured on markup on selling price and not markup on cost.

For instance, he said, a contractor may find that he sold a $100,000 volume last year. If his cost of goods sold was $75,000, and his expenses were $15,000, he would properly figure that he needs a 15% markup on selling price to cover his overhead.

But, when he comes to price a job, he is prone to add 15% to his cost of materials (the only figure he has) to cover his overhead. That is where he goes wrong. Fifteen per cent of $75,000 (cost of goods sold for the year) would be only $11,250. He must add a 20% markup to his cost of goods sold to get the $15,000 needed to cover his overhead.

In many closely figured jobs, West warned, the difference between that 15% and 20% figure may be more than the entire net profit on the job.

Nu-Way Purchases Sundstrand Control

ROCK ISLAND, Ill.—Nu-Way Corp. here has announced its purchase of a controlling interest in Sundstrand Engineering Co. of Rockford, Ill.

According to an announcement mailed to all customers, the Sundstrand line will remain a separate entity, and both burner lines will be maintained unchanged. Manufacture of Sundstrand burners will be transferred to Nu-Way's Rock Island plant.

Under terms of the purchase agreement, Sundstrand will operate as a division of the Nu-Way firm. Rupert "Gus" Gustafson, former principal of Sundstrand, will continue his residence in Rockford, but as manager of the Sundstrand Div. he will be in close contact with Nu-Way's production and engineering departments.

Charles B. Bendix will continue an association.

Both manufacturers, it was pointed out, have been active in the oil heating field since 1921.

Easily-Removed Electric Heating Warms Dam's Temporary Housing

THOMPSON FALLS, Mont.—Electric heating is used to warm temporary living quarters for construction workers building the Noxon Dam near here for Washington Water Power Co.

Although the temperature at the site may drop to -30° F., a comfortable indoor climate is provided by baseboard electric heating supplied by Westinghouse Electric Corp., the company says.

Supervisory personnel of the Morrison-Knudsen Co., the contractor building the dam, are occupying temporary houses on the job site.

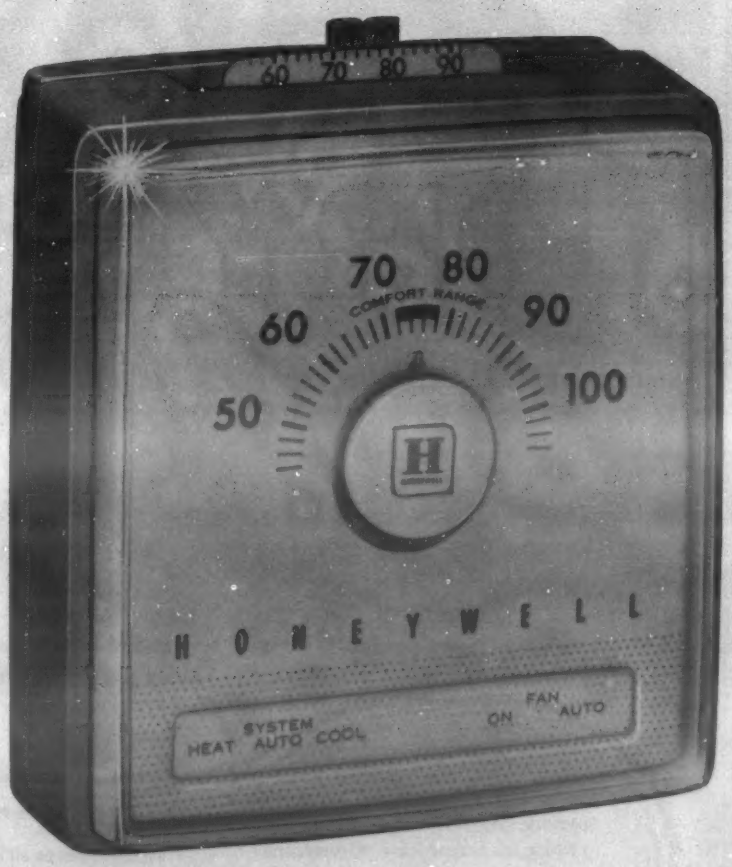
There are three barracks for construction personnel—two 80-man buildings and one 30-man bunk house. There are also an office building, cafe, laundry building, infirmary, trailer court building, and garage.

The office, infirmary, and barracks buildings are of log construction set on 4-in. concrete slabs and with no insulation or storm windows. The temporary homes are of frame construction and are insulated, so a lower heating capacity is necessary to maintain room comfort.

Westinghouse baseboard electric heating was installed in the first buildings put up. It worked so successfully that all buildings requiring heat have been equipped with the same type.

When the construction job is finished, some of the buildings will be moved. Heating will be no problem since electric heating is so simple to install and to move, Westinghouse said.

Honeywell Residential
Air Conditioning Thermostats
fit any system!



T 870 Thermostat—New deluxe heating-cooling series permits semi-automatic or full-automatic changeover. Six models, seven sub-bases give up to 42 combinations for every type of heating and cooling—single- or two-stage. Switching for remote reset available. Anticipation on all stages of heating and cooling. Easy installation. Dust-free mercury switches. Silver-bronze finish.

McQuay First Half Sales Set Record, But Profits Drop

MINNEAPOLIS — First-half net sales of McQuay, Inc. set a new all-time record of $7,530,993 compared with $7,239,041 in the same period in 1957, which was the highest of any preceding period, B. E. James, president, said in a letter to the firm's stockholders.

At the same time increased selling and manufacturing costs reduced profit from $339,668 in 1957, or $1.24 a share on the common stock, to $261,899, or 90¢ a share, it was stated.

The company's backlog of unfilled orders at the end of the six-month period also stood at a new all-time high and was 20% greater than a year ago, the report said. Shipments toward the last of the six-month period were at a rate 20% above last year.

Incoming orders since the end of the six-month period are also the highest in the company's history for this time of year, approximately 20 to 25% above 1957, the best previous year. This make the outlook for the final six months highly optimistic, James said.

The company has undertaken an aggressive selling, sales promotion, and advertising program, and while this has increased expenses, benefits are just beginning to accrue, he pointed out.

Hospital Gets Cooling

DAWSON, Ga.—Nine new air conditioning units have been installed in the 27-bed Terrell County hospital in Dawson through the generosity of an anonymous donor, reports Administrator M. D. Scott.

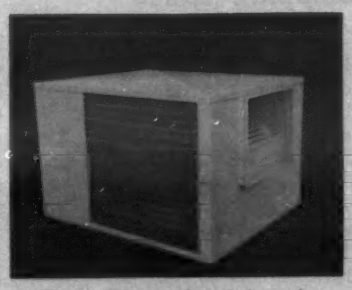
ASHAE Region 4 Wants Exposition In San Francisco

SPOKANE, Wash.—A resolution backing an invitation to hold a future "International Exposition" in San Francisco was adopted here by the third annual meeting of Region 4, American Society of Heating & Air-Conditioning Engineers.

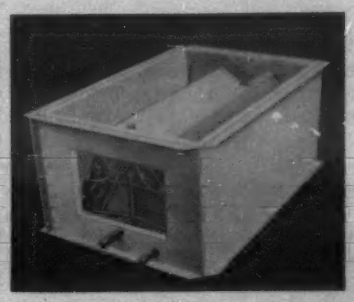
Herb Duncan, delegate from and immediate past president of the Golden Gate Chapter, said the invitation was endorsed by all delegates and alternates.

Duncan said the statement which obtained support at the regional meeting was that which said the west, by acting as a group rather than by individual chapters, can be more optimistic about its success in getting the right to host the society-sponsored show reasonably soon.

7½-Ton Air-Cooled Condenser, Coil For Air Conditioning Offered by H & M



HALSTEAD 7½-ton air-cooled condenser for use with residential and small commercial air conditioning installations.



TYPE VR direct expansion cooling coil now available through 7½-ton capacity from Halstead & Mitchell.

PITTSBURGH—A new, larger capacity air-cooled condenser and matching cooling coils have been introduced by Halstead & Mitchell here for residential and small commercial air conditioning installations.

H&M now offers its type ACR condensers and type VR and type HR enclosed cooling coils in 7½-ton capacities. They formerly were available only in 2, 3, and 5-ton sizes.

The type ACR condenser, housed in a lustrous hammer-finish steel cabinet, contains condenser coil, blower, and heavy-duty fan motor. The weatherproof cabinet provides space for installation of a compressor, receiver, and necessary controls for a complete, high-side package.

Like the 2, 3, and 5-ton models, the 7½-ton unit features quiet centrifugal blower fan operation, the company said. In addition, the special cabinet finish requires no maintenance for many years, it is claimed.

"The type VR and type HR direct expansion cooling coils are ideal for use in conjunction with forced air heating systems," the announcement stated. "Both may be used for Refrigerants 12 or 22.

"Type VR coils in attractive, insulated housings are compact in size and are designed for installation in the furnace plenum. Where headroom above the furnace outlet is limited, type HR cooling coils can be placed in horizontal, supply ductwork.

"All H&M finned coils feature the exclusive 'Turbo-Flo' fin, providing an extra measure of heat transfer."

ASHAE 65th Annual Meeting To Coincide With Exposition

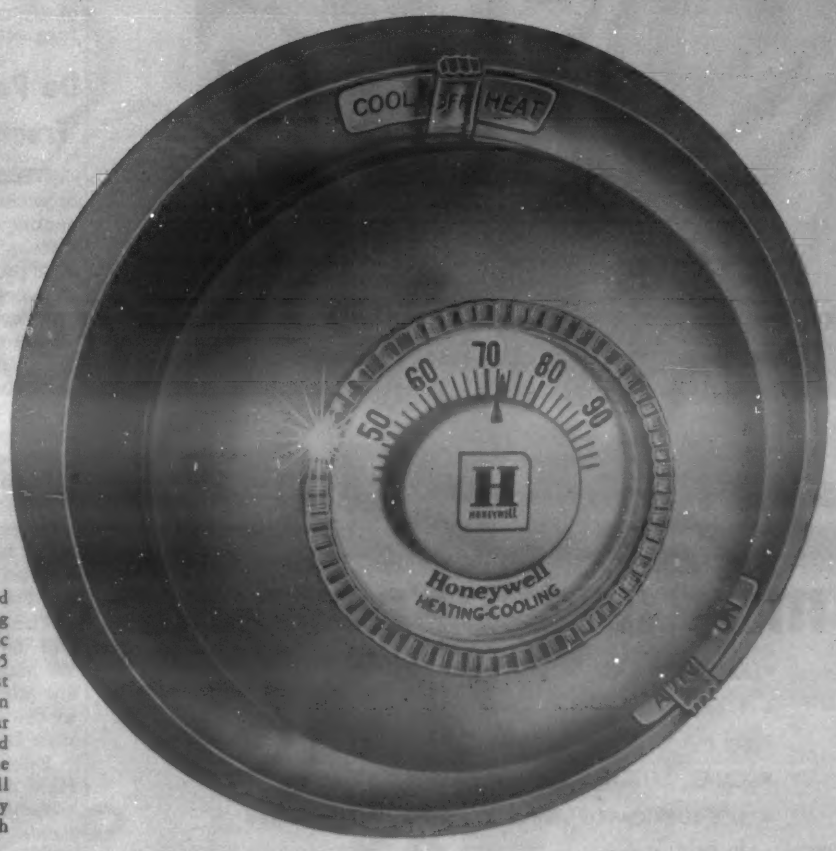
NEW YORK CITY—The 65th annual meeting of the American Society of Heating & Air-Conditioning Engineers will consist of seven sessions including three symposiums and one topical session, it was announced recently.

The topical session will feature papers concerned with human comfort as related to indoor environment. One of the symposiums will be on the general subject of hydronics, another on heat pump performance, and the third on corrosion and water treatment.

The annual meeting and the 14th International Heating & Air Conditioning Exposition under the auspices of ASHAE will be held in Philadelphia, Jan. 26-29.

ASHAE registration headquarters will be at the Bellevue-Stratford hotel. The exposition will be held in Convention Hall. The council and various committees will hold meetings on Saturday and Sunday, Jan. 24 and 25.

Standardize on Honeywell—the industry's most complete air conditioning control line—for: • Thermostat and sub-base matched for the job; semi-automatic or automatic changeover; heating and cooling—single- or two-stage. • Exact switch and thermostat combinations to fit requirements. Complete your control systems with Honeywell's especially designed and pre-wired control panels and pressure controls. For full details of Honeywell's Residential Air Conditioning controls, call your local Honeywell office, or write: Minneapolis-Honeywell, Dept. AN-9-74, Minneapolis 8, Minnesota.



T 87 Thermostat — Standard Residential Air Conditioning thermostat for semi-automatic changeover. 12 matching Q405 sub-bases provide the most flexible control combination available. Features the popular styling, decorator cover, and engineering advantages of the world-famous Honeywell Round. Dust-free mercury switch. Anticipation on both heating and cooling.

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NAMA Readies St. Louis Show

CHICAGO — Plans for the 12th annual convention and exhibit of the National Automatic Merchandising Association, to be held at Kiel Auditorium, St. Louis, Nov. 2-5, were nearly completed following a series of meetings held during July and August, according to C. S. Darling, executive director of NAMA.

"More than 150 members are expected to have exhibits at the show," Darling said, "and we expect attendance to set a new record.

"Theme of the convention will be 'Dollars From Sense' and will emphasize workshop sessions and key speakers on a variety of practical subjects."

Frigid Igloo Adds New Manufacturing, Shipping Space

YONKERS, N. Y.—S. James Krakow, executive vice president of Frigid Igloo Mfg. Corp. here has contracted for 35,000 sq. ft. of space on the street floor of 498 Nepperhan Ave. in Yonkers.

The new plant has a railroad siding and shipping and receiving facilities from Gate 15 on Saw Mill River Rd. "New equipment for the manufacture and expediting of deliveries is being installed and one of the largest baking ovens in the industry will be in operation," it was stated.

Frigid Igloo will be in complete production on the new premises between Sept. 30 and Oct. 15, the announcement pointed out.

Reed, Strong To Attend Refrigeration Engineering Parleys In Europe

WASHINGTON, D. C.— Frederick J. Reed, chief engineer of the Air-Conditioning & Refrigeration Institute, and Henry G. Strong, executive secretary of the Refrigeration Industry Safety Advisory Committee, are attending international engineering meetings in Europe in September on subjects of interest to the refrigeration and air conditioning industry of the U. S.

Strong will represent the U. S. refrigeration industry at sessions of two "commissions" of the Technical Board of the International Institute of Refrigeration, being held in Moscow, U.S.S.R., and Prague, Czechoslovakia, and will serve as a member of the American Standard Association delegation at a meeting in London of Technical Committee 86 (Refrigeration) of the International Organization for Standardization (IOS).

Reed, a member of the Standards Committee of ASRE and its former chairman, will head the ASA delegation at the London meetings, scheduled Sept. 18-20.

Other members of the delegation, in addition to Reed and Strong, are Paul R. Achenbach, U. S. Bureau of Standards; B. R. Jennings, director of research, ASHAE; Dr. R. C. Jordan, professor of mechanical engineering, University of Minnesota; Dr. C. F. Kayan, professor of mechanical engineering, Columbia university; E. M. Heap, joint manager, York-Shipley, Ltd., London; and Philipp Goldman, general manager, Carrier A. G., Zurich, Switzerland.

The scope of the London sessions has been designated as "Coordination of standards in the field of refrigerating equipment as used in refrigeration and air conditioning," with areas of particular interest to the U. S. (ASA) delegation defined as coordination of definitions and terminology, as well as safety and testing standards.

The Moscow and Prague meetings to be attend by Strong will precede the London sessions. In Moscow Commission 3 of the Technical Board of IIR is discussing design, construction, and operation of refrigeration machinery and air conditioning plants, Sept. 1-9; and Commission 7, meeting in Prague Sept. 11-13, will consider refrigerated transport by land and air.

Strong is participating in the sessions as a representative of the U. S. National Committee to IIR, through affiliation with National Academy of Sciences and the National Research Council of the U. S.

Other Americans who will make up the delegation to the Moscow and Prague meetings include Dr. W. T. Pentzer, chief of the Biological Services Branch, Agricultural Marketing Service, U. S. Dept. of Agriculture; John Kelley, manager of fruit transportation, Fruit Dispatch Co., New York City; Harland Nissen, vice president and general manager, Terminal Refrigeration Co., Los Angeles; Dr. Kayan, and Dr. Jordan.

In addition to attending the three meetings, Strong will confer with R. Thevenot, director of the IIR, at the organization's Paris headquarters, and with Dr. F. Tradari, secretary of Commission 7, at Rome, before returning to the U. S.

Du Pont Realigns 'Freon' Salesmen

WILMINGTON, Del. — Reassignment of technical sales personnel serving customers of "Freon" refrigerants and aerosol propellents has been announced by Du Pont.

Effective Sept. 1, Aubrey E. Fulford will transfer from the Jacksonville, Fla. territory of the division's eastern district, to the Kansas City territory in the central district. M. Brooks Jackson will move from the Roanoke, Va. territory to Jacksonville, and John K. Worthington transfers from the Kansas City territory to the eastern district's Syracuse, N. Y. territory.

The Roanoke, Va. territory will be taken over by William W. Massengill, who for the last six months has been in training at the company's "Freon" Products Laboratory.

Effective Oct. 1, Lawrence P. Hall, Jr., for the last two years technical assistant to the division's aerosol sales manager, will become the division's technical sales representative in the St. Louis territory. Robert Wright, Jr., will move from St. Louis to the Chicago territory, replacing Glenn A. Piper, Jr., who becomes technical assistant to the aerosol sales manager in the Wilmington, Del office of the "Freon" Products Div.

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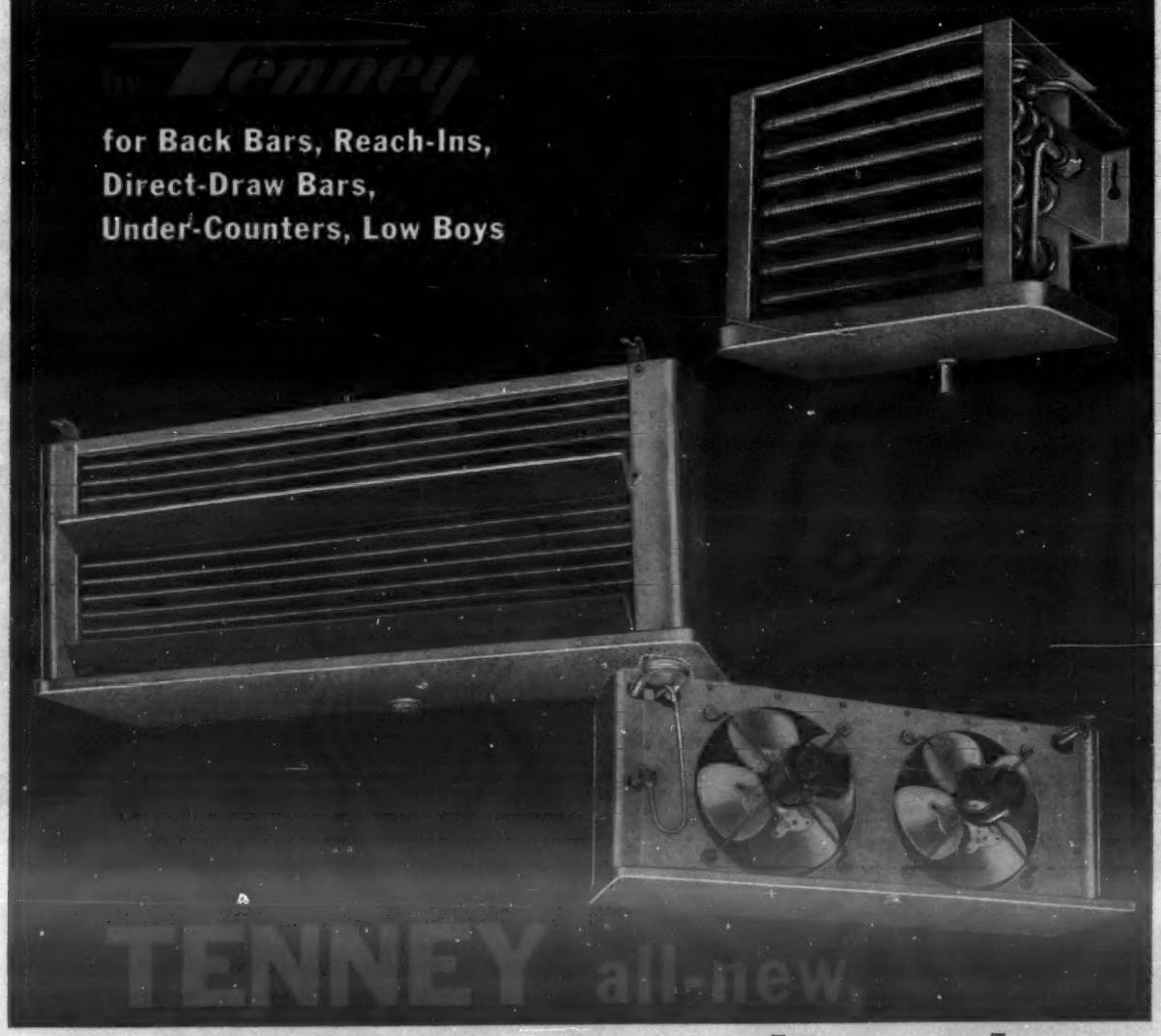

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Write for Bulletin 118-58

Engineers and Manufacturers of Refrigeration and Environmental Equipment

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New Cap Allows Testing of Expansion Valve Without Removing from Auto Air Conditioner

DETROIT — Testing the expansion valve on an automotive air conditioning system—without removing the valve from the system—is now possible with a procedure developed at Chrysler Sales and Service Training Center here, it is reported by Ansul Chemical Co.

Applicable to all air conditioning units, factory or dealership-installed, the testing method can be modified for use on other than automotive units.

A critical item in the test is a test cap developed at Chrysler and available from Miller Mfg. Co., Detroit. According to E. Beacham, manager of refrigeration O.E.M. sales development, Ansul, the orifice on this test cap is extremely important. An inaccurate orifice "might indicate that a good compressor or valve is bad, and vice versa."

Before beginning the test, it is also important that the compressor capacity be checked and passed. Otherwise, gas used to test the valve could leak past a compressor reed valve or a fractured head gasket from the discharge to suction side—anything like this would undo the expansion valve test.

The actual method:

1. Discharge the refrigerant from the system.

2. With the manifold gauge set connected to the compressor (refer to illustration), position the discharge and suction service valve stems four turns clockwise from the backseated position (mid-position).

3. Attach the compressor capacity test orifice cap (SP2922) to the suction side of the gauge set (see illustration). Turn suction gauge manifold valve completely clockwise to closed position.

4. Remove the sensing bulb of the expansion valve from the bulb well on the suction line. Allow bulb temperature to rise to ambient room temperature.

5. Place tank of Refrigerant-12 with drier and valve attached (refer to illustration) in pail of hot water—water temperature not to exceed 125° F.

6. Attach post from manifold gauge set, center position, to the refrigerant tank, as shown in illustration, and open refrigerant tank valves.

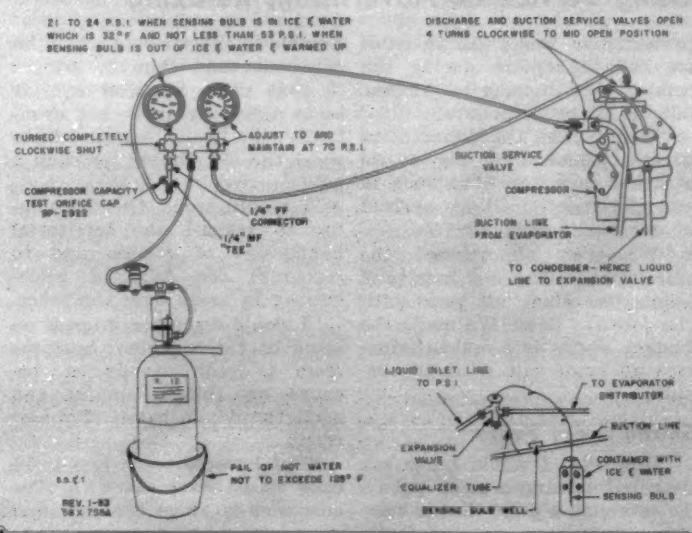
7. Adjust manifold right hand valve to maintain a pressure of 70 p.s.i. on discharge gauge.

8. Read suction gauge pressure. With expansion valve sensing bulb warmed up to room temperature the reading on the suction gauge should be not less than 53 p.s.i.

9. Place the sensing bulb in a container of ice and water. The temperature of the ice-chilled water will stabilize at 32° F.

10. As sensing bulb temperature and pressure decreases, readjust gauge set discharge valve to maintain 70 p.s.i. on discharge gauge. The suction gauge should read between 21 and 24 p.s.i. (These limits may be altered to agree with the super heat setting desired.) If the expansion valve successfully passes this test, the valve has the proper heat setting, the proper pressure limit, the correct rated capacity, and has not lost its thermal bulb charge. Therefore, it will give satisfactory performance. It is good practice at this time, since the system is without refrigerant, to remove the expansion valve inlet screen. Clean it, if necessary, and replace.

11. Vaccum, sweep test for leaks, and recharge system.


21 TO 24 P.S.I. WHEN SENSING BULB IS IN ICE & WATER WHICH IS 32° F AND NOT LESS THAN 53 P.S.I. WHEN SENSING BULB IS OUT OF ICE & WATER & WARMED UP
DISCHARGE AND SUCTION SERVICE VALVES OPEN 4 TURNS CLOCKWISE TO MID OPEN POSITION
TURNED COMPLETELY CLOCKWISE SHUT
ADJUST TO AND MAINTAIN AT 70 P.S.I.
COMPRESSOR CAPACITY TEST ORIFICE CAP SP-2922
1/4" FF CONNECTOR
1/4" MF "TEE"
SUCTION SERVICE VALVE
COMPRESSOR
SUCTION LINE FROM EVAPORATOR
TO CONDENSER—HENCE LIQUID LINE TO EXPANSION VALVE
LIQUID INLET LINE TO P.S.I.
TO EVAPORATOR DISTRIBUTOR
SUCTION LINE
EXPANSION VALVE
CONTAINER WITH ICE & WATER
EQUALIZER TUBE
SENSING BULB
SENSING BULB WELL
PAIL OF HOT WATER NOT TO EXCEED 125° F
REV. 1-53
58 X 7384

TEST of expansion valve without removing valve from air conditioning system is shown in drawing at left.

Hoerbiger Opens In New Brooklyn Quarters

BROOKLYN—The Hoerbiger Corp. of America has commenced operations from its new headquarters at 160 Van Brunt St. here.

New headquarters consists of offices and warehouse stocking valve and valve components for refrigeration compressors, among others, made by Hoerbiger & Co. in Vienna, Austria.

Gunnar Lund, director of engineering services, said, "we endeavor to assist manufacturers in every way possible including such facilities as engineering research, specific product development, technical assistance at your plant, prompt servicing, and dependable delivery."

The firm recently announced a new purchasing program that offers maximum discount for an entire year's needs with payment and delivery as required.

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6 Lessons for Commercial Distributor

Mfr. Should Emphasize Value of Sound Business Structure, Sales Policy Recruiting, Doing Own Installation, Using Service as Advertising, Relaxing

CHICAGO — Six lessons a commercial refrigerator manufacturer can teach his distributors were spelled out at the annual convention of the National Commercial Refrigerator Sales Association by Ray Winther, San Francisco area distributor.

These are lessons that the distributor should master to operate successfully and to perpetuate himself, Winther said.

Sound Structure

"First," he declared, "if I were a manufacturer, I would teach the distributor to establish a sound business structure.

"That is, the distributor should learn to respect the money he handles and realize that while he touches it, only that portion which is the difference between the selling price and the cost is his to keep. The distributor should be taught to budget his operation and then to operate to that budget. This is not easy to do, but it is essential.

"Budgeting sounds great, but how do you do it. I'm not sure myself, but this is what we did.

"We determined the amount of invested capital we had in our business and then established how much money we would be justified to make on our invested capital.

"With that number of dollars as a goal, we worked backward to see how much dollar sales we had to achieve during the coming year in order to get that number of profit dollars.

"In our case, the dollar sales necessary looked too big, so we attacked each item of expense in our statement until we arrived at our goal—on paper.

"We then apportioned the sales goal among our men, and kept after them all year until the job was done. We made the budget, and it is a real satisfaction to come out with the results.

Sound Sales Policy

"Secondly, I would teach my distributors sound sales policy. To establish a price that is comparable to the services which he performs—and then to adhere to that price for everyone. It takes time — years — but eventually the trade learns to respect the distributor for such a policy.

"I would teach the distributor to respect the territorial boundaries of others, and to recognize the folly of price-cutting in areas over the fence.

"I would teach him to pass up some of the marginal business from a credit standpoint, because one bitter almond can spoil the whole batch of macaroons.

"But I would teach him to be easy to do business with. The customer is king; the customer gets what he wants; that 99% of the time the customer is right; and to do it the customer's way.

"Customers are hard to get and harder yet to keep. Once you lose him, he is hard to get back, so baby him; go out of your way for him; serve him, and bless him, because without him, we would be nothing.

"And then, as a manufacturer, I would go and do likewise.

Recruiting, Keeping Good Employes

"Third — I would teach my distributor how to recruit and keep men, because without men you are not in business. Good men are everywhere if given the opportunity to prove themselves.

"They are everywhere, but still no where in particular. So when you find a likely one, you have to be ready, quickly, to decide whether to grab him or let him go to your competitor or some other industry.

"In our case we are constantly investing in a new man. Just as soon as he begins to make progress or begins to earn his own salt, after nine months to a year's time, we put ourselves back into the manpower market. That is, we are back to serious looking and watching, but in the meanwhile, we do not over look anyone; we just are more critical.

Professional Personnel Testing Agency Used

"Our process is still the same. When a professional salesman appears on our side of the globe we talk to him. If he shows promise, two others in our organization interview him. We then talk about him, and if agreeable we test him through the professional testing agency we have used successfully for years — Sadler & Associates, right here in Chicago.

"They have been so nearly right so often that we cannot afford not to use their services. If their report is positive, after our own questioning, the man is on, and he stays and stays, and grows with the business.

"I cannot, in all truth, tell you when our last salesman quit. We have practically no turnover of manpower, because we take time and spend money to select men. And we provide big company inducements and security while providing small company privileges and working conditions.

Employe Benefits

"I have, in previous years, told you about our incentive plan of compensation; of our $25 monthly prize to the wife of the salesman who makes his quota for the month; and of the profit-sharing plan we started a few years back.

"We have this year started two additional employe benefits. One is a hospitalization plan for the salesman and his family. It is a very inclusive plan, and the company pays $10 monthly and the balance, $5 or $6, is deducted from the employes check.

"Number two—we have taken out salary continuation insurance on our salaried personnel. Twenty members of the firm qualify at a cost of just over $100 per month to the firm.

"The benefits are tremendous to the employes—peace of mind—primarily, because after 90

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days of sickness or accident, they receive $60 per week in addition to state benefits, for a period of two years.

"The company continues to pay the regular salary for 90 days, and thereafter is free of double salary expense. The cost is about $1,300 per year as opposed to no insurance—and we have had two unfortunate experiences in a relatively short time.

"One of our employes was ill for seven months, and without insurance we paid out over $5,000 in salary continuation to him.

"The insurance is good business, but more than that, it is an inducement when you are recruiting your permanent personnel.

"If the manufacturer does not teach his distributors how to recruit men, and then how to keep men, he could easily find himself with an 'old' distributor or no distributor at all in a given area.

"Proper recruiting and developing is essential to the continuation and progress of a distributor, and the recruit very often becomes superior to his sergeant. My own firm is certainly a case in point.

"Sales training is essential and so self-evident we won't go into it here—but the factory must be constantly on the alert with material for the distributor's use. It is full time work for someone to keep it pouring in to the distributors. We still meet *every* week.

Distributor Should Do Own Installation

"Lesson number four—the distributor must be taught to do his own installation of equipment. This, in our case, is a must. While many will still argue in favor of contract installation, we believe that the contractor does not have his heart in the job as much as the distributor does himself.

"Proper installation is important. We stress, for example, the use of vacuum pumps for cleaning systems and evacuating air and moisture. We stress the oil testing method on new jobs.

"Some of you may not be doing it but it really pays off—primarily for the customer. After our jobs have been in for 60 days, the man who goes out on the routine 60-day service, draws an oil sample out of each compressor system.

"If the oil is clear we have a clean and safe system. If the oil is the least bit discolored, we have work to do to prevent that system from deteriorating further.

"We have discovered and corrected pending trouble by this method, and saved our customers thousands of dollars in trouble and repairs.

"Both the vacuum pump method of evacuation and the oil test system were taught us by the manufacturers.

Repair Perfectly or Replace Is Motto

"The fifth lesson is in the service department. Here the manufacturer has an opportunity to shine. He could really do a service by teaching the distributor the corrections to troubles as they occur. Let us admit that sometimes things do go wrong. When they do, the first cure is the cheapest cure.

"Repair perfectly or replace—do not patch. That is our motto. While it appears costly, just stop and think.

"We all spend money for advertising, 1 to 1½% of our sales, to get customers the hard way. Then we turn around and foul up our hard earned advantage by failing to take care of them for the sake of a few dollars.

"In our own case we spend good money for advertising, and when something goes wrong, we fix it regardless of cost.

"About a year ago we had a strike in one of the major compressor manufacturing plants, so we went to the outside and purchased four 7½-hp. compressors for use on a job that could not wait. Everything was fine. We were practically heros for getting the job done without delay.

"The job was working fine, but the 60-day oil check showed discoloration and we were having trouble. Our service department treated for moisture, but the normal cure did not correct the defect.

"We had the oil analyzed and found that the windings were breaking down. So on our own, for the protection of our customer, we replaced four 7½-hp. compressors at a cost of $4,200 less the resale value of four replacement compressors valued at about $1,600.

"We were out-of-pocket $2,600 because that manufacturer failed to accept the responsibility for the defects after nationally publicizing our fool-proof method of application.

"I do not bring this up as a complaint against the particular manufacturer—needless to say, we buy very little from that source now, but I do bring it up to prove another point. Our own service policy is without compromise. We spent $2,600 of our own money without complaint from our customer to keep our reputation in tact. It worked.

"Every ice cream and frozen food driver in the area knew about our work, and the word spread. What had we actually done?—We had spent an extra ⅛oth of 1% for advertising. No mailing piece; no full page ad could ever have accomplished as much good.

"To carry the point further, it affected our net profit at the end of the year even less—directly ⅛oth of 1%—but indirectly it actually increased our net because of the goodwill and business it created.

"This is only one case of service, and to keep the customer in the position of being right 99% of the time costs very little in actual money. Call it advertising and it becomes a real joy to please the customer and to be easy to do business with.

Relaxation

"Now, lastly, I would teach my distributors how to relax. This is the part of the lesson I personally have learned best and enjoy the most.

"If you have learned your other five lessons well, and passed them on to your associates, you will be surprised how capable they are. Remember, for the sake of your own ego, you have taught them all you know—not all they know—because they have learned a lot on their own.

"Give them a chance to try their wings. You have learned to become a good distributor by the help and teachings of the manufacturers.

"Those are my six points—and if I were a manufacturer I would teach them earnestly and well, and as a distributor I would try to learn them well."

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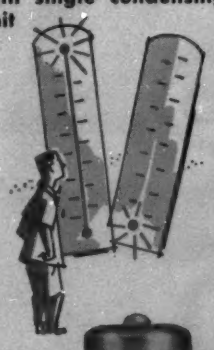
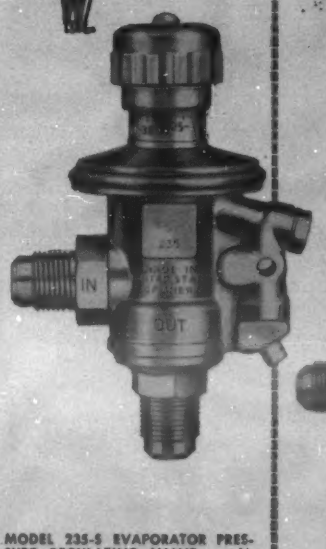
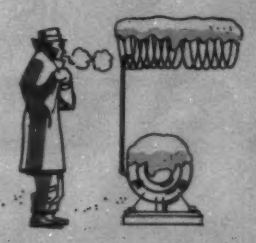
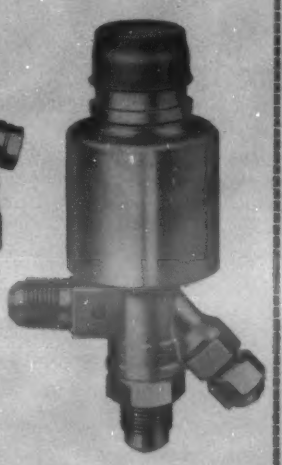




MODEL 235-S EVAPORATOR PRESSURE REGULATING VALVE — ½ ton R-12, visual pressure setting from 0 to 40 lbs. Also available with 20 to 70-lb. adjustment range. Suitable for all refrigerants.

PREVENTS freezing of water cooling equipment and frosting of air coils



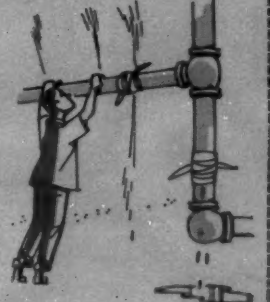


MODEL 238 EVAPORATOR PRESSURE REGULATING VALVE — 1 ton R-12. Also available in limited adjustment range of 32 to 38 psig.

PROTECTS compressor motors from overload and possible burn-out

MODEL 237 CRANKCASE PRESSURE REGULATING VALVE — for hot gas or electric defrost installation. Two capacity ranges: 1½ and 3 tons R-12. Flare or solder connections. Two adjustment ranges: 0 to 40 lb. opening point; 30 to 160 lb. opening point. Valve opens on outlet pressure decrease below opening point.

PERFORMS pressure regulating function for all non-corrosive refrigerants



MODEL 239 PRESSURE REGULATING VALVE — Model 239A in two adjustment ranges: 40-140 and 80-210 psig. opening point. Model 239SH 40 lb. to 190 lb. opening point adjustment range. Protected with long spud solder connections. Valve opens on inlet pressure increase above opening point.

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Air Conditioning, Refrigeration Play Varied Roles In Production of New F-27 Jet Transport

WAYNESBORO, Pa. — The important roles air conditioning and refrigeration play in the building of the new F-27 jet transport at Fairchild Aircraft, Hagerstown, Md. were described recently by Frick Co. here.

The company's equipment is put to varied uses at the plant, including air conditioning the offices, machinery rooms, and labs, and treating metal parts used in the airplane itself.

A 40-passenger plane designed to serve smaller local airports, the F-27 has two Rolls-Royce prop-jet engines of either 1,720 or 1,990 hp. each. They give the plane a speed of 280 to 300 m.p.h. As of a recent date, 15 airlines had ordered a total of some 100 of the air conditioned ships.

The executive offices at the Fairchild plant and the main office areas are air conditioned by two 9-cyl., 125-hp. "Eclipse" compressors. For air conditioning the service department and cafeteria, three 50-ton Frick systems are used.

"The use of refrigeration as applied to the building of the F-27 actually begins in the engineering and calculating rooms where all of the plans and drawings are made and all phases of the mathematical problems are checked and solved.

"The engineering and calculating rooms are equipped with an IBM machine system and a new analog computer. These machines enable the engineering division to solve many problems of design, construction, vibration and flutter, and similar mathematical equations, with a great saving in time.

Air Conditioning Keeps IBM Machines Running

"To keep these valuable machines operating at top efficiency, the entire area is air conditioned by four Frick unit air conditioners of 7½ hp. each.

"In converting the original Fokker design of the transport to American standards, Fairchild engineers specified that only the best materials and fabrication methods were to be employed. These included the use of annealed rivets, prepared in the Fairchild shop for greater strength and easier working on the assembly line.

"The aluminum rivets vary in length from 3/32 in. to ¼ in. . . . Approximately 100 lbs. of rivets daily, or a ton a month, are prepared for airplant fabrication in the plant.

"The rivets are treated in 910-930° heat for 20 to 45 minutes, depending on the size, and are then placed in a bath of cold circulating water at a temperature near 32° F. The rivets must be placed in the cold-water bath within 10 seconds after being removed from the furnace.

"Next the rivets are dipped in alcohol to keep them from freezing together, and are then placed in conventional cold-storage chests at 0° F. The time elapsed, from furnace to storage, is not over two minutes.

"There are 18 cold-storage chests located near the assembly lines, which are kept filled with treated rivets by attendants using portable insulated containers. The treated rivets must be used within 20 minutes after removal from storage.

"Frick equipment supplies the refrigeration for cooling and maintaining the cold water and alcohol baths at or near 32°. A Frick 5-hp. compressor with Frick water-cooled condenser and receiver is used to carry this job efficiently."

Calibration Lab Air Conditioned

It was also pointed out that the calibration laboratory is air conditioned. Temperature control and filtered air is needed here to adjust the various instruments used in other plant departments.

Take-down inspection is another service performed in this lab and here, too, filtered, conditioned air is essential.

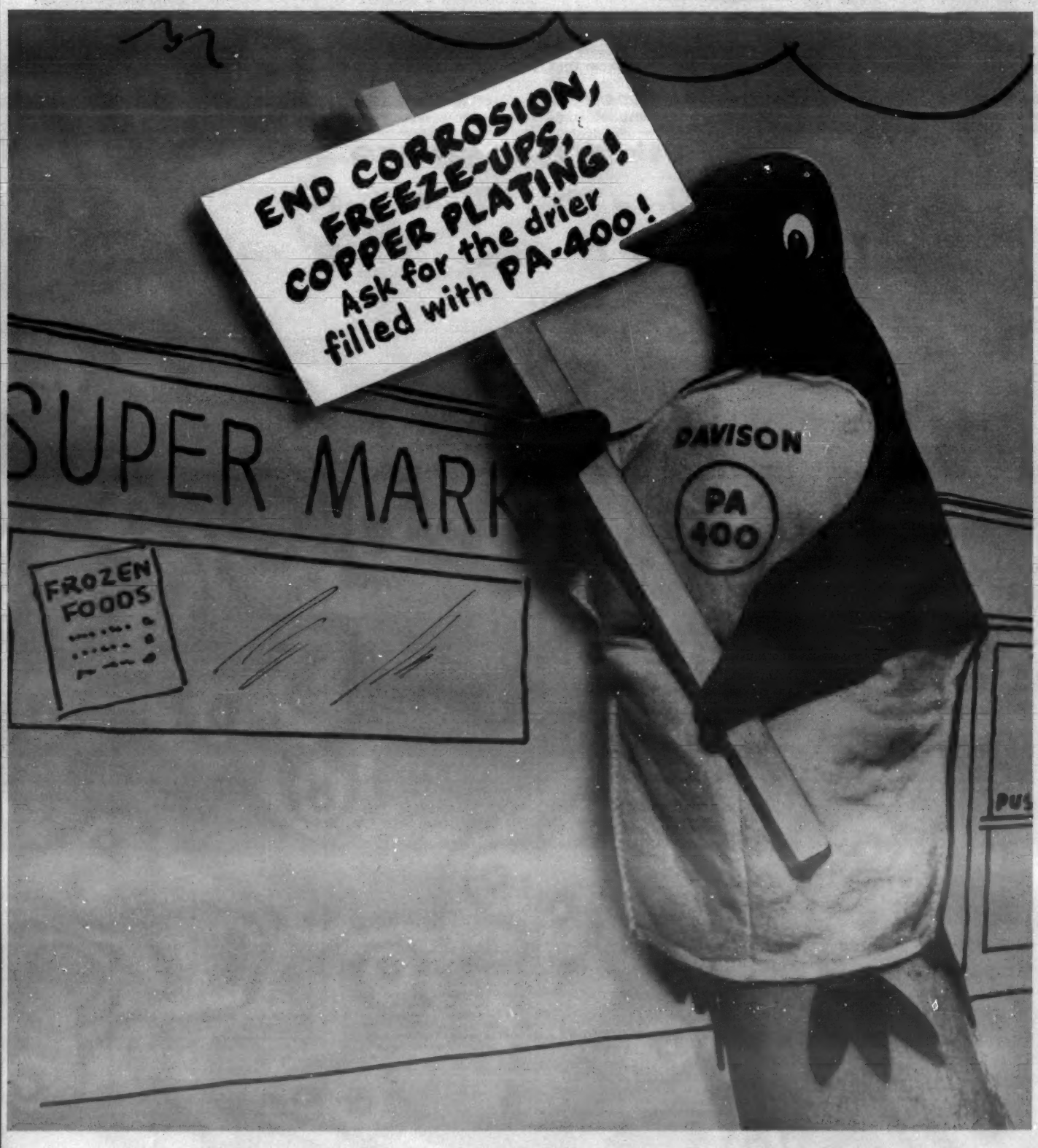
"Take-down inspection is sometimes necessary to check component parts to make positive they meet the requirements of the specifications," it was explained. When re-assembled they must be clean and free from any dust or foreign matter.

"At times, instruments supplied by other manufacturers have to be checked or recalibrated before installation in the airplanes. The work is sometimes performed in this lab, rather than returning the material to the manufacturer. A radio testing and checking division is now being established in this area.

"The air treatment for this entire area is supplied by two 7½-ton Frick unit air conditioners."

Maxon Shirt Cools New Plant Addition

GREENVILLE, S. C.—A new 40,000-sq. ft. addition to the plant of Maxon Shirt Co., manufacturer of boys' wear, located on North Pleasantburg Dr., will be completed shortly and the firm is expected to occupy it by Oct. 1. Max Heller, president-treasurer, said "the new plant will be completely air conditioned."



ADSORBS ACIDS. Refrigerants react with water, oils and other contaminants to form acids. These acids attack metals in refrigeration systems . . . cause corrosion, freeze-ups, copper plating. But PA 400® Silica Gel removes moisture *before* it can form acids. What's more, it removes any acids already in the system! So ask for the drier filled with PA 400. Both you and your customers will be happy you did. See your distributor tomorrow.

W.R. GRACE & CO.
DAVISON CHEMICAL DIVISION
BALTIMORE 3, MARYLAND

Air Conditioned Hotel For Air Travelers Opens

DALLAS—An air conditioned hotel for air travelers was opened here recently directly across from Love Field, the Dallas airport.

The 102 guest rooms and suites are located in three two-story units. A commercial building houses lobby, restaurant, kitchen, two banquet rooms, private club and patio, and administrative offices.

A high velocity air conditioning system, claimed to be the first installed in a building only two stories high, serves the three guest units. Commercial building is divided into nine separately controlled zones.

Alford Plumbing and Heating Co., Dallas, installed the air conditioning systems.

New 7-Story Office Building In New York To Be Conditioned

NEW YORK CITY — A new $2,250,000 seven-story air conditioned office building has been started in the shadow of the Grand Central Terminal at 144 East 44th St., it was announced by Wylie F. L. Tuttle, president of Collins Tuttle & Co., Inc., managing and renting agent.

Half a block from the terminal, the structure will contain approximately 55,000 sq. ft. of rentable office space providing average floor areas of approximately 6,000 sq. ft.

Completion of the new building is scheduled for May of 1959. It is being designed by Paul Resnick, A.I.A., architect with Harry F. Green, A.I.A., as associate architect.

Supermarket In Milford Shopping Center To Be Cooled

CINCINNATI — A huge Albers Super Market will be one of the tenants of the new $2.5 million Milford Shopping Center, now under construction on U.S. 50, Milford, and scheduled to be completed in October of 1959.

The Albers market, already under construction, will be completely air conditioned and contain 20,800 sq. ft. of shopping area. It will have a 43-ft. refrigerated production section, 100 ft. of dairy and frozen food cases, and an extra large self-service meat section extending across the rear of the store.

Kathabar Wall Chart Lists Standards of Sterility for Hospitals

TOLEDO—A wall chart listing standards of sterility to protect hospitals and patients against bacteria is now available from Kathabar Div., Surface Combustion Corp., Toledo 1, Ohio.

The chart has been prepared based on suggestions by leading medical authorities and air hygiene specialists, the company pointed out.

Sees Percentage Rising Significantly

More Than 50% of Major Office Space In N.Y. Will Be Cooled with Completion of 20 New Bldgs.

NEW YORK CITY—A survey of 93,000,000 sq. ft. of major Manhattan office space in 433 existing structures and buildings under construction reveals that air conditioned space in the city is passing the 50% mark.

The survey, made by Frank Hudik, president of Hudik-Ross Co., mechanical contractor, covers 12,178,000 sq. ft. of space in 20 new buildings under construction; 25,530,000 sq. ft. in 90 completed postwar buildings; and 55,303,000 sq. ft. of major space in 323 prewar buildings.

Major office space, according to the Real Estate Board of New York, represents 83.5% of the total assessed value of all office buildings in Manhattan.

The Hudik-Ross study shows that when the 20 buildings now under construction are completed, 51% of major office space in Manhattan will be air conditioned.

A breakdown of the air conditioned space, which comprises nearly 48,000,000 sq. ft. out of the 93,000,000 surveyed, includes the nearly 38,000,000 sq. ft. in postwar and completed under way buildings and approximately 10,000,000 sq. ft. of cooled space in prewar structures.

Commenting on the economic significance of these statistics, Hudik emphasized that not only is air conditioning becoming a competitive necessity in today's office space market but it has also proved to be an investment that provides a huge percentage return.

Owners of older buildings must face up to this reality—they must begin planning now for cooling their premises if they expect to compete with the millions of feet of new space scheduled to be added to the city's supply during the next several years.

"Considering that plans have already been announced for 10,000,000 more feet of space to be constructed during the next several years, it is a certainty that the percentage of cooled office space in the city will continue to rise significantly with each passing year," Hudik predicted.

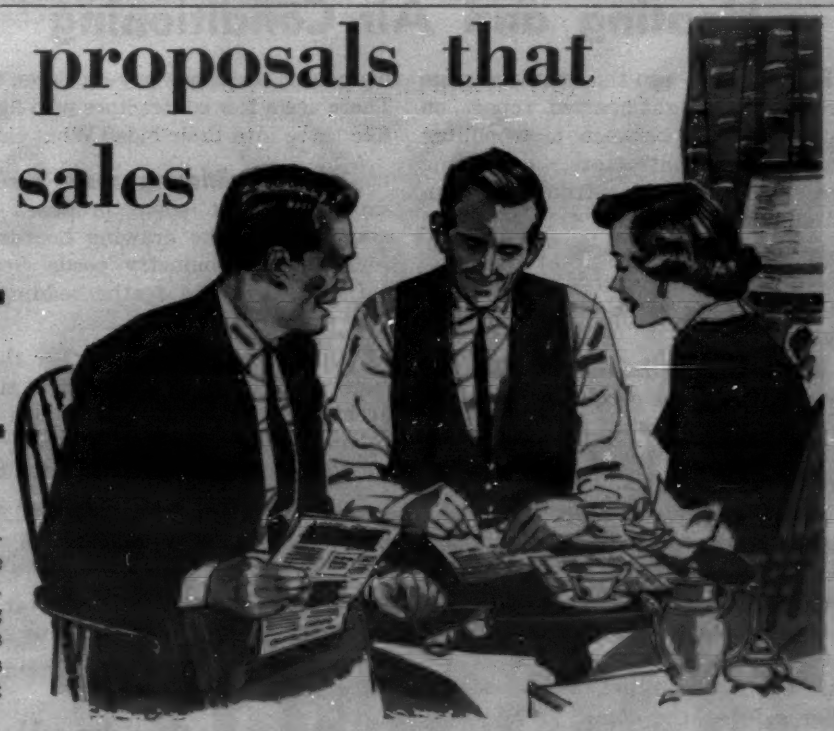
As a rule of thumb, Hudik estimates the cost of air conditioning an existing building at about $2 a sq. ft. for the complete job. With air conditioning increasing the value of space in today's market by as much as $1 a foot, it is conceivable that the owners investment will repay itself in two years and almost certainly in three, after which the income from the space will increase by as much as 30% depending upon the amount of the original rental.

Portland Dental Bldg. Gets Heat Pumps

PORTLAND, Ore. — The recently-opened Portland Dental building at 2122 N.E. Broadway is air conditioned the year-round by water-to-air electric heat pumps. Providing 12,000 sq. ft. of space plus penthouse.

Write up proposals that wrap up sales

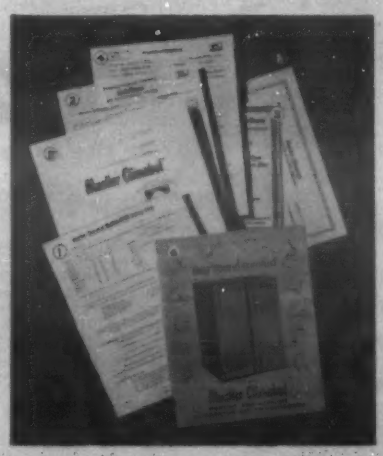
Better Business Guide No. 8



THE proposal is one of the mightiest weapons available to the dealer who's selling modernization. Logically organized and showing thorough analysis of the prospect's needs, it simplifies the salesman's job... gives him ammunition against price-slice competitors.

Confidence Is the Key

Actually, the value is psychological as well as practical. The prospect tends to put his faith in the company that presents its offer in writing. Then too, recent studies show that the typical home owner believes home comfort systems are standardized — does not consider individual problems and desires. The professional, detailed proposal shows him that his money is well spent to meet his particular requirements.



READY-MADE MATERIALS to make up your proposal are those offered by Mueller Climatrol: (1) Clima•test® heating or cooling survey forms, (2) attractive proposal folder, (3) summary form, (4) proposal and acceptance contract form, (5) warranties and (6) product literature.

Of course, there's more to it. It is difficult for the layman to grasp the competitive values you offer. Put 'em on paper. Let him see and study a full description of the proposed installation, showing how and why it justifies the cost.

You'll relieve your salesman of this job and establish a standard that takes more than price-cutting to overcome. Also, this form becomes a contract so that there is no misunderstanding by either party as to what work is to be done.

Always Ring Twice

Experienced heating-cooling salesmen find that two calls are usually needed to do the job right.

First call: Your man makes a comfort survey, punctuated with inquiries about past performance. (A good survey outline is one that gives him material for subtle selling as he takes it.) But there is no mention of price. Rather, he leaves with a promise that, *"Our engineering department will analyze this material, and I'll return shortly with our findings."*

He should make a definite appointment for the follow-up call. For interim protection, have him emphasize that *only* through such careful study can an accurate recommendation be given.

Second call: Within 48 hours, if possible, the salesman returns with a neat presentation that includes the calculation, system layout, documented price analysis and the all-important order form. Assemble them in a folder of the type available at any stationery store or from your manufacturer. If you wish, add such materials as product literature, advertising reprints, letters from satisfied customers or photos of other installations (preferably in the same neighborhood). An impressive finishing touch: the prospect's name typed on a label and placed on the cover.

Easy Does It

There's no great mystery, no great effort to compiling an effective personalized proposal. Standard forms and literature available from your manufacturer produce an attractive, impressive brochure. Use your own ingenuity to make it sell *your* services, too. Your Mueller Climatrol representative will gladly show you the key materials . . . work with you in developing your presentation. Why not get in touch with him, or write to us directly.

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DIVISION OF WORTHINGTON CORP.

They'll Do It Every Time

by

Jimmy Hatlo

OH, DELIRIA, DEAR—MY PORTABLE IS BROKEN DOWN··· WOULD YOU BE A FRIEND IN NEED AND GET OUT THESE CLUB NOTICES FOR ME? YOU'LL FIND ALL THE THE MEMBERS' NAMES IN THE BOOK···I'D HELP YOU, BUT I HAVE TO GO TO A COMMITTEE MEETING····
DELIRIA WILL BE BROKEN DOWN, TOO—BAD ENOUGH SLAVING FOR OLD MAN BIGDOME, LET ALONE TOTING THE BARGE FOR HIS OLD LADY···
OL' FUSSFACE ONLY BELONGS TO ABOUT EIGHTY-FIVE CLUBS···DO IT ONCE, AND DELIRIA WILL BE SWEEPING UP THE LADY BICYCLE RIDERS' SUNDAY AFTERNOON MEETING ROOMS···
J.P. BIGDOME PRESIDENT
BIGDOME IS PRESIDENT, SECRETARY OR TREASURER OF ABOUT FORTY CHOWDER SOCIETIES, HIMSELF···DELIRIA DOES EVERYTHING BUT MARCH IN THE PARADES···
THIS IS THE SLOW SEASON···FROM SEPTEMBER TO JUNE, DELIRIA HAS TO DO HOMEWORK FOR BIGDOME'S GOONY NEPHEW···
SYMPATHIZING WITH THE SECRETARY OF EXTRA-CURRICULAR ACTIVITIES···
THANX AND A TIP OF THE HATLO HAT TO KAY LEIMBACH, 62 VIA BARRETT, SAN LORENZO, CAL.
7-16

Other Side of the Coin of Industrial Heating and Air Conditioning

SEVERAL weeks ago this editorial page was devoted to a light-hearted report on community relations between metropolitan air conditioning contractors, consulting engineers, and architects—from the contractors' standpoint.

Thanks to the promise of anonymity, the quoted contractors uttered some funny remarks, perhaps not to be taken too seriously.

Said summary was based on interviews with New York City air conditioning contractors conducted by a staff member. Obviously these interviews, being one-sided affairs, revealed a certain amount of personal bias on the part of the interviewers.

That bias—always present in any joint operation, from a committee to subcontracting—provided the essential humor.

Since that time, the writer has talked with several prominent architects in the Midwest. Purpose: to get a look-see at "the other side of the coin."

That picture, it turns out, isn't so funny. Some of these industrial architects aren't just merely biased. Nor were they often humorous. They're bitter.

A common complaint is that both heating and air conditioning contractors often are so fiercely competitive that their recommendations aren't really trusted altogether. Competitive claims tend to cancel out one another. Quoting one top architect:

"A wet-heat man sees nothing good about warm air, and *vice versa*. Each type contractor would rather cut his opposite number out of a job than get it for himself. Gas and electricity people cut each other up, too; also gas and oil advocators.

"Moreover, some contractors are tied up with a specific union; others with competing unions. When we award a sub-contract, losing bidders sometimes call on their Union pals for retribution, and then we have problems.

"Frankly, temperature-device contractors have given us more trouble than all the rest of the sub-contractors we deal with combined."

Corroborates another of America's leading architects:

"Our city is Union-ridden. Politicians largely are at fault; but heating and air conditioning contractors themselves aren't blameless. Advance pay-offs aren't unusual. There are a few contractors who figure items like these into their bids. What can you do?

"Air conditioning costs here are so exorbitant that some proposed buildings never get off the drawing boards for that reason. Your industry needs cleaning up, particularly as to featherbedding installation practices.

An interviewer does gather the impression, while talking with some midwestern architects, that their opinions may be colored somewhat by the fact that air conditioning in itself complicates their jobs.

As one crusty old character (who has part of Chicago's interesting lakefront "skyline" to his credit) put it:

"I wish air conditioning never had been invented! Its ducts throw interiors out of proportion; its cooling towers are eyesores; its costs are abominable.

"And as for those dag-nabbed window units—hell, man, I've blasphemed against them so often that I've become a bore in the Confessional. I've almost convinced Father Mulcahey that air conditioners are an invention of Satan. They've raped the clean lines of more downtown office buildings than South Side hoodlums have defaced toilet walls with their scrawled obscenities."

An Ohio architect admits that he's wished on occasion that air conditioning would just go away somewhere and get lost. His feelings are more practical than esthetic. It's a matter of high costs. (No doubt good rebuttals can be made.)

"We have to include air conditioning in any new hotel or office building, of course," states this fellow. "Otherwise it couldn't be financed. Bankers today simply will not approve loans or float bond issues on any downtown metropolitan building which does not include air conditioning in its plans.

"However, bids submitted by air conditioning contractors sometimes take so much money out of the total available . . . that often we have to cut corners everywhere else when drawing up a total budget.

"Unlike many of my colleagues I do not accuse air conditioning people, or plumbing and heating contractors, of getting rich at the expense of the general public. I realize that union labor charges in their trades tend to be high, and that installations are complex.

"However, I do feel that an industry-wide re-examination of trade practices would be healthy and helpful. As a matter-of-fact, it's long overdue."

So, there we have it. The pot calls the kettle black. (Isn't that always the case?)

We hold no brief for these critics; nor are we sure that their actual influence on ultimate sales of industrial heating and air conditioning equipment is ultra-important. Nevertheless, these men deserve their Day-In-Court, and here they've had it.

Frequently there are not only two sides to any question, but several. Those of us who are engaged in a growth business (which still has growing pains) probably should heed any and all criticism, no matter how much it may be justified.

"The customer is always right."

Just about the time you reach the conclusion that the world's so bad nothing can be done about it, some stranger stops his car so you can pull into the main stream of traffic ahead of him.—BURTON HILLIS.

It seems improbable that we, or any nation or group of nations, will attain peace until each man, in his own mind and heart, treats all men as his own brothers.—EDDIE CANTOR.

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F. M. COCKRELL, *Founder*

'The Conscience of the Industry'

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FINDS INDUSTRY DOES NOT WANT NEW IDEAS

Manufacturers' Research Co.
New York 38, N. Y.

Editor:

We have been avid readers of your paper for some time. Being an old timer in the air conditioning and refrigeration industry—30 years to be exact—we have found your paper to be a must.

Some time ago your editorial column expounded the idea for all manufacturers to push their New Product Development. We as Product Developers have tried to reach the industry with new concepts in air conditioning, appliances, heating and a new auto air conditioner that can be installed by any handyman in one hour in any car.

To date we have not received a thank you reply from companies written to. It seems to us that the bottle-neck set up by existing engineering officers is the deterrent to product development (unless they themselves invented it).

How can the industry grow?

MAURICE FRIMET,
President

SEES CONFUSED PROSPECTS SPOILING MANY SALES

Sporlan Valve Co.
Mount Vernon, N. Y.

Editor:

When you buy on price alone, you get just what you payed for—and too often not what you wanted. And what is it that people usually want? Just to be satisfied, not confused. I have often been reminded that a confused prospect is not a happy person and a person who is not happy is never a buying customer.

The additional danger involved is usually that a confused prospect spreads it to other prospects killing what would normally be easy sales.

It sure looks like we all have a big selling job to do in this industry of ours, which again only proves that selling is everybody's job.

W. A. REICHENBACH

FIRM IN ITALY SEEKS FRANCHISE

Elettrotermica Adamoli
Via Masaniello, 58
Milano, Italy

Editor:

We are one of your subscribers and we ask if it is possible for you, to make us a favor.

We wish to receive from your part, the names and addresses of some of the most important industries, which build air conditioning machines and to whom we may write for proposing them, to allow us to build in Italy, with their licenses.

We are sure that you will do the best for satisfying us in the minor time possible, and in the meantime, we are, Dear Sirs,

Yours faithfully,
SESTO S. GIOVANNI

WANTS SOME CONCRETE DATA ON PELTIER EFFECT

Remington Corp.
Auburn, N. Y.

Editor:

Certainly the ASRE should be applauded for the attention they gave the Peltier Effect at their June convention. And, certainly you should be complimented for the space you have devoted to this interesting and promising subject in recent issues of the NEWS—particularly your Aug. 18 editorial. However, as one who has followed this subject for over 20 years, I would like to see a few specific questions answered by those who are competent to talk with authority.

1—How many B.t.u.'s per Watt is *theoretically* possible with this effect, at temperature ranges corresponding to (a) Summertime operation of a freezer? (b) Summertime operation of a household refrigerator? (c) Normal operation of an air-cooled room air conditioner?

2—What *actual* B.t.u.'s per Watt have laboratories been able to obtain for these three broad applications?

3—What power factor is to be expected—bearing in mind that alternating current must be converted to direct, in order for the Peltier effect to function?

A few years ago I discussed this subject in some detail with Dr. Rudolf Plant at the Kaltetechnisches Institute of Karlsruhe, Germany. I found that much work was being done in Hanover on this subject. For example, as an interesting experiment a drinking glass had been built in the bottom of which ice could be frozen during the daytime to facilitate a quick cold drink at the end of a working day. However, I do not believe this was considered to be commercially useful.

My impression is that the efficiency of the Peltier effect is low. Instead of being able to get say 8,000 B.t.u.'s per hour of cooling for an input of one kilowatt, as in the case of a room air conditioner, it would take at least 3 or 4 kilowatts to achieve the same results.

The other day, in a large middle-western city, the manager of several leading office buildings said "we are not going to air condition any of these buildings until we can do it with electronic cooling." And, this isn't the first prospect who has refused to buy because of incomplete, some-what premature publicity on what is still only laboratory work. Therefore, the industry would be benefited if you could get authoritative answers to the above questions. When you have the answers and publish them I think you'll make it a lot easier for some of us to go out and sell equipment that employs the good old Carnot Cycle, to buyers who suffer from "a little knowledge."

Take care of yourself.

HERBERT L. LAUBE,
President

ENJOYED WORLD TRAVELS

Tack Air Conditioning, Ltd.
London, S.W. 1, England

Editor:

I should like to thank you very much for the mention you have given me, personally, and to my company in the NEWS.

I should also like to tell you how much I always enjoy reading your articles. Especially I have had an immense amount of pleasure from those referring to your world travels.

ALFRED TACK,
President

NEWS ITEM: A COMPLETE NEW LINE OF ANSUL PACKAGED REFRIGERANTS IS NOW AVAILABLE. YOUR ANSUL WHOLESALER HAS "FREON-12", "FREON-114", AND SULFUR DIOXIDE IN ONE POUND DISPOSABLE CANS AND "FREON-22" AND METHYL CHLORIDE IN TWO POUND CONTAINERS.

PEOPLE MAKE THE DIFFERENCE BETWEEN PRODUCTS

There's a difference in refrigerants, but it's a difference that doesn't really have much to do with specifications or chemical gobbledegook. The real difference is service—the people who go with the refrigerants. When you buy any Ansul refrigeration product you are getting more than a guaranteed top quality product. You are also getting the help of people who care about your personal refrigeration problems . . . people who are willing and able to help solve them in a creative, imaginative way. We invite you to use our people.

ANSUL CHEMICAL COMPANY / MARINETTE, WISCONSIN

FIRE EXTINGUISHING EQUIPMENT / INDUSTRIAL CHEMICALS / REFRIGERATION PRODUCTS / NATIONAL DISTRIBUTORS OF "FREON" REFRIGERANTS

Modern Installation and Service Tools, Instruments Save Labor, Increase Income, and Impress Customer (Part One)

CHICAGO—Proper use of modern tolls and test instruments not only can save labor but make money and build prestige for the air conditioning and refrigeration installer and serviceman, contends A. E. Manning, president of Refrigeration Service Engineers Society and vice president of a leading New Jersey service firm.

In a talk before a national meeting of the society, Manning commented, "I am quite sure that we would take a dim view of the doctor who conducted his examination by feeling our forehead, taking our pulse, and listening to our heart action by placing his ear to our chest. We certainly have a lot more confidence if he acts in a professional manner, takes our temperature with a clinical thermometer, examines heart and lungs with stethescope, and checks our blood pressure.

"Your customer will react the same way when you diagnose the trouble with his equipment when using the professional instruments indicated for the particular piece of machinery," Manning declared.

"Most of us," he explained, "would like to have every instrument which we have ever found an occasion where it could be applied, but that is not the way to approach this problem.

"The first thing to decide is how much money can we afford to spend right now," he suggested. "Once that is determined, our next question is what instrument that I do not now have can I use most frequently in my business. Once we have enough money, we buy this instrument and, most important, we use it. It just doesn't help a bit on the shelf in the shop."

Installation Work Needs Different Tools Than Service

Installation work requires a different group of tools, etc., than needed for service, and here Manning advises that prior to sending out an installation crew the boss or department supervisor should make a job survey to determine the tools needed, handling and rigging required, and time schedules.

"The presentday installation crew, if properly equipped, will carry a considerable number of different tools and devices. Here again the type of installation to be performed will regulate the number, type, and size of tools.

"For the supermarket installation, for example, the following would be found on the truck: pipe vise, pipe support stand, ½-in. and ¼-in. electric drills, cutting torch with regulating valves and gauges, brazing torch with regulating valves, gauges and various tips, three sets of hose for the torches, a power driver of the Ramset style, power pipe threader, hand pipe threader up to 2 in., small ratchet pipe threader to ¾ in., electric hammer, several pipe reamers, pipe wrenches from 8 in. to 3 ft., sledge hammer, Prestolite tank and various sized tips, chain hoists, tubing benders, pipe and tubing cutters, light meter, hook-on ammeter, refrigerant gauges and manifold, two hand trucks, portable electric arc welder, several pry bars, Johnson bars, metal rollers, wood rollers, heavy duty dolleys, cylinders of acetylene, oxygen, either nitrogen or carbon dioxide, and cylinders of refrigerant.

"Add to this ladders, rope, hand tools, hack saws and you have a substantial load before you include installation materials and fittings," Manning said. "Many of our larger installations go into buildings at the time they are under construction, especially air conditioning and supermarket equipment. Much of the work performed by our people is possible before the utilities are connected, but much more progress can be made with adequate lighting.

Generating Plant Can Pay Off

"A portable gasoline electric generating plant of 2,000 watts up will often pay for itself in time saved and better workmanship on the first job on which it is used," he declared.

"The problem of getting components in place is one of major importance in air conditioning installations. It is quite likely that a crane will be used to place the cooling tower or evaporative condenser but eventually the air handling units have to be installed or blower

coils hung and for this job a device such as the 'Hoist It' can be applied.

"This device, which, with planking and all accessories, weighs less than 500 lbs. and can be set up in minutes. It consists of two tubular columns which are similar to the screw jack supports so common in construction. Each column has a cable and hoisting arrangement and an adjustable platform attaches to the two columns.

Each tubular column extends from ceiling to floor with the platform between and will lift up to 4,000 lbs. 18 ft. from the floor.

Power Threaders Save Time

"Labor used in piping amounts to a considerable portion of that expended on the average installation. Power threaders save much time and are presently available from types mounted on stands to a small portable device which can be set on the floor or a bench and held by a handle while it cuts the threads.

"Ratchet type hand threaders and ratchet type reamers are almost universally accepted because of their ease of handling in comparison to the so called 'Armstrong' tools. They cost a little more but they save hours of labor and are so much easier to handle," he emphasized.

"A considerable amount of welding, brazing, and soldering occurs in the average installation; also, an occational cutting job is done.

"Most cutting is done on steel plate, angle iron, flat bar, and the like and is occasioned by the need for plates for mounting equipment, or fabrication of hangers or supports for lines or equipment. This is best done with the acetylene and oxygen cutting torch but once the pieces are cut the electric arc welder comes into play for welding the pieces together and attaching to structural steel.

Brazing, Soldering Equipment Available

"Brazing and soldering can be handled best by the oxygen and acetylene equipment or in connecting the smaller sizes, with the Prestolite torch.

"There are now several double-tip torches available which apply heat on both sides of a fitting at one time. These save considerable time but in addition make a smoother brazing or high temperature soldering job by applying the heat much more evenly, thereby using much less Silfos, Phoscopper, or silver solder and with silver at 65 to 80 cents an ounce, this means a considerable saving in itself.

"The big problem in welding, brazing, or silver soldering in installing the piping for a refrigeration or air conditioning system is the oxidation formed on the inside of the lines where the heat is applied in putting the system together. This scales off when the metal cools and is flushed through the system by the oil and refrigerant. Soon strainers are clogged, valves are sticking, and all manner of trouble occurs.

Small Flow Meter Has Been Developed

"All of this could be avoided if it were possible to do this work without oxygen being present on the inside of the lines and it is possible.

"A flow meter for measuring the flow of gases has been developed which is small enough to be applicable to an application such as this. It will meter the flow of gas from 1 cu. ft. per hour up. This makes it possible to flow into the system being connected the 3 or 4 cu. ft. per hour of neutral gas which displaces air containing the oxygen and leaves the inside surface as bright as ever, with no scale after brazing or soldering.

"Nitrogen has been most widely accepted as the gas to introduce into the system during brazing or soldering. There are several other gases, such as helium or argon which would work equally well but they cost considerably more per 100 cu. ft. and nitrogen, if it is of sufficiently low dewpoint leaves nothing to be desired.

"There are two processes used in compression of nitrogen. One, known as water pumping, will produce nitrogen which serves all ordinary applications, but for our uses oil-pumped nitrogen is superior as it is much dryer. It is important that dry nitrogen be used as moisture in contact with the red hot metal when high temperature soldering or brazing is being done it is likely to disassociate into hydrogen and oxygen and in sufficient quantities could nullify the effect of nitrogen," Manning cautioned.

(To Be Continued)

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Important News For the Refrigeration and Air Conditioning Industries...

UCON Refrigerants will be dry, pure, top quality

With UCON Refrigerants you will get quality that meets the highest industry standards. And you can choose from five grades, UCON 11-12-22-113-114.

But you'll get more. Much more.

Personal Service from technically trained representatives. The UCON Refrigerants service force is the largest in the United States.

Full Choice of Unit Sizes to meet your needs. UCON Refrigerants will be available in 10, 25, 145 lb., or ton cylinders; truck-tank or tank-car quantities.

Prompt Delivery from the largest network of distribution points serving America's refrigeration and air conditioning industries.

America's newest fluorocarbon plant will bring you a UCON Refrigerant for your air conditioning and refrigeration application. And there are new, exciting developments, soon to come. For full data write UCON Refrigerants, Union Carbide Chemicals Company, Division of Union Carbide Corporation, 30 East 42nd Street, New York 17, New York.

"Ucon" and "Union Carbide" are registered trade marks of Union Carbide Corporation.

Ucon BRAND refrigerants

These 5 UCON Brand Refrigerants will meet your refrigeration and air conditioning needs

UCON Refrigerant 11 Trichloromonofluoromethane
UCON Refrigerant 12 Dichlorodifluoromethane
UCON Refrigerant 22 Monochlorodifluoromethane
UCON Refrigerant 113 Trichlorotrifluoroethane
UCON Refrigerant 114 Dichlorotetrafluoroethane

UNION CARBIDE CHEMICALS COMPANY *Division of Union Carbide Corporation*

Phoenix Firm Moves

PHOENIX, Ariz. — Arizona Refrigeration Supplies, Inc. has moved into its new 6,000-sq. ft. building at 20 S. 17th St.

The firm, owned by W. C. Miessemer, formerly was located at 231 S. Central Ave.

Opened in 1936 as Refrigeration Supply Distributors, the firm was purchased by Miessemer and J. Carl White in 1940. In 1945, Miessemer purchased White's interest and formed the present corporation, which since has opened branches in Tucson and Yuma.

H. O. Anderson, general manager, said the company's inventory has increased 25 times since 1940.

Commercial, Industrial Air Conditioning Survey Defines Potential Market

2—FACTS ABOUT THE INSTALLATION • *Du Pont Study Shows Which Types of Equipment Are Used In Each Market*

Complete results of its survey on the Commercial and Industrial market for air conditioning have recently been released by the Freon Products Div. of Du Pont. Because it offers much that will be useful to all who are concerned with the sale of equipment to this market, the NEWS is publishing a condensation of the complete survey in a series of articles. This is the second in the series.

The commercial and industrial air conditioning market has shown a continuous growth. An accelerated growth rate in recent years is borne out by the showing in the survey that 50% of the installations reported were made in the last three years up to and including part of 1957.

Package units predominate in two categories of the retail market and are very important in a third one. Package units have played the least important part in the personal, business, and repair service category which has been handled mainly by room air conditioners. Built-up or applied systems have had their widest application among food and drugstores and eating and drinking establishments.

These findings on the proportion of various types of systems installed should help those in the field in checking their own sales against industry averages, and they should also help in defining the most likely markets for different types of equipment.

Wide usage of room units in industrial establishments is probably accounted for in large measure by the fact that many of the industrial establishments were only partially air conditioned. In those cases, air conditioning was usually confined to the office, first aid, and cafeteria areas—ideal places for use of room units.

There are considerable differences in average tonnages for the different retail categories, with the largest (miscellaneous retail stores) being exactly double that of the smallest (personal, business, and repair services) having the smallest average tonnage. The survey had shown that places in this latter category were done largely with room units.

These figures, along with other findings on the extent of air conditioning in different types of establishments, should be helpful in arriving at estimates of sales potentials.

Average installed tonnage for industrial establishments is next to the lowest for any category, including retail. It will be recalled that there was a high incidence of partial air conditioning among industrial establishments.

"Although logic would seem to indicate that the industrial

(Continued on next page)

% Installations by Years Commercial & Industrial

Year Installed	% Installed
1957	16
1956	19
1955	15
1954	11
1953	7
1952	6
'50 and 51	8
1946-1949	6
Before 1946	4
Don't know	8

Types of Systems In Retail Establishments

(% of Total)

	Room	Package	Central, Peripheral, or Split System
Food and drug	41	34	25
Eating and drinking	27	48	27
Personal, business, and repair services	70	17	13
All other retail	40	49	12

Types of Systems In Other Commercial Establishments

(% of Total)

	Room	Package	Central, Peripheral, or Split System
Offices in office bldgs.	43	15	49
Hotels and motels	81	5	21
Institutional	68	5	31
All other public occupancy	49	23	29

Types of Systems In Industrial Establishments

(% of Total)

Room	52%
Package	22%
Central, Peripheral, or Spit System	30%

For Your Reprint Copy

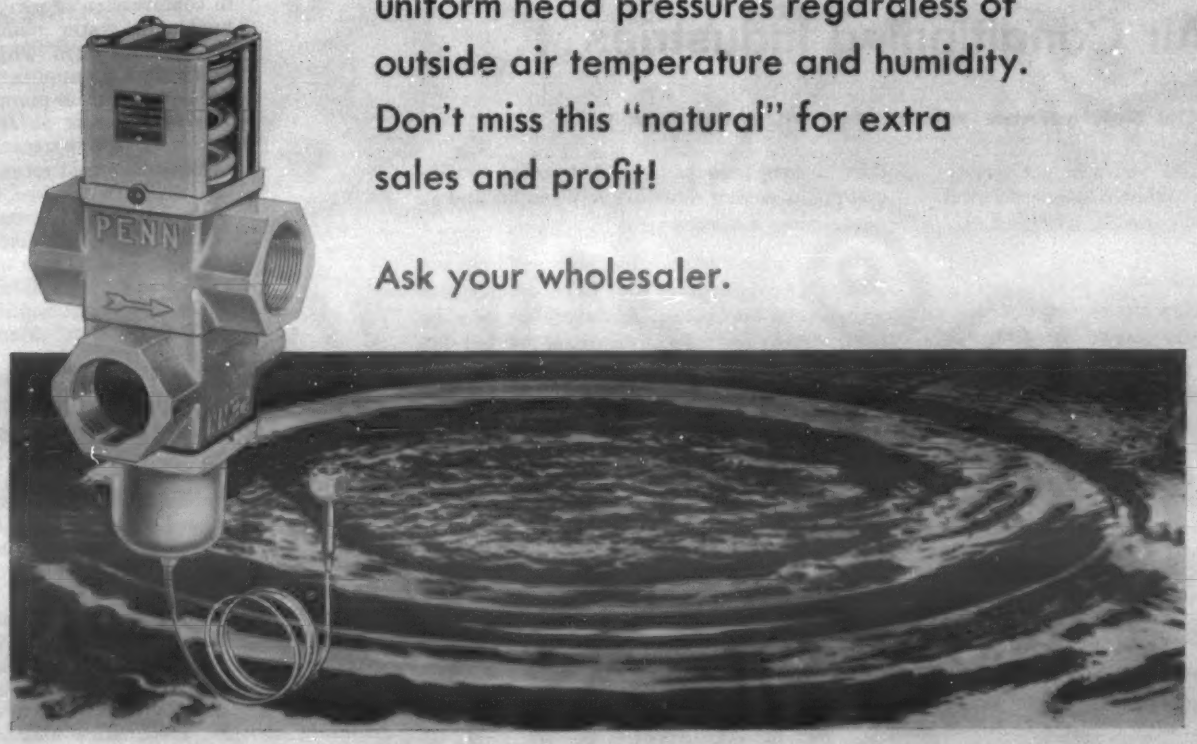
"Emergency Diagnosis, Repair of Hermetic Unit Electric Components," by John L. Zant, mail this ad with your name and address to: Air Conditioning & Refrigeration News, 450 W. Fort, Detroit 26, Mich.

Only 25¢ each.

sales tip for servicemen...

Now is the time to check all refrigeration and air conditioning jobs using cooling towers. Cooler weather is coming . . . that means lower cooling water temperature which drops refrigerant head pressure and reduces capacity of the system. To correct this . . . to reduce tower maintenance and compressor lubrication problems . . . install the Penn 3-way water valve! It maintains uniform head pressures regardless of outside air temperature and humidity. Don't miss this "natural" for extra sales and profit!

Ask your wholesaler.



PENN CONTROLS, INC. Goshen, Indiana

EXPORT DIVISION: 27 E. 38th ST., NEW YORK, N.Y.

AUTOMATIC CONTROLS FOR HEATING, REFRIGERATION, AIR CONDITIONING, APPLIANCES, PUMPS, AIR COMPRESSORS, ENGINES

MIGHTY MITE THERMAL PROTECTORS

FOR MOTOR OVERLOAD PROTECTION

MECHANICAL INDUSTRIES PRODUCTION COMPANY

223 ASH STREET • AKRON, OHIO

Average Tonnage In Retail Establishments

Food and Drug	9.3
Eating and Drinking	7.9
Personal, Business, and Repair Services	6.6
All Other Retail Stores	13.2
Total Retail Stores	9.5

Average Tonnage In Other Commercial and Industrial

	%
Institutional Establishments	21.7
Offices In Office Buildings	10.9
All Other Public Occupancies	11.2
Hotels and Motels	21.3
Total Other Commercial Establishments	12.2
Industrial Establishments	7.5

Room and Package Type Units Now Account for a Larger Percentage of Commercial and Industrial Installations than Formerly

	Room or Package (%)	All Others (%)
1945 and prior	24	76
1946-1949	38	62
1950-1951	51	49
1952	61	39
1953	66	34
1954	70	30
1955	70	30
1956	64	36
1957	66	34

* * *

Cooling Survey--

(Continued from preceding page)

installations, on the average, should be much larger than they are at present, it will take real selling effort to make any big changes in the present pattern," the survey concludes.

When installations were classified into room or package type or other systems, a definite trend to room and package installations in the more recent years was noted. This is attributed in part to a growing preference among installers for packaged systems, plus the fact of a rapid increase in total number of installations in recent years.

Since there are many more small establishments (especially retail) which have been largely done with package units, this could contribute to the trend.

The survey further declared that its findings indicated that package units actually increased in 1957, although room units and other systems did decrease. This would seem to confirm the trend to package units, especially for use in retail establishments.

The great majority of room and package unit installations in retail establishments, it was found, are single unit installations.

The survey makers observed that since so many retail stores can be handled with single units, this might suggest the possibility of some form of trial or rental system where the unit could actually be put in the store for a trial period.

"Once the benefits of air conditioning had actually been experienced in the place of business," it was said, "it is doubtful if many proprietors would want the equipment moved."

(To Be Continued)

Infiltration Through Swinging Doors of Tall Buildings Shown In ASHAE Survey

MINNEAPOLIS — Results of the society's research to determine the amount of air infiltration through swinging doors of tall office buildings during the heating season were presented before the 1958 semiannual meeting of the American Society of Heating & Air-Conditioning Engineers here by T. C. Min, now of Alabama Polytechnic Institute.

Similar studies on filtration during summer cooling are in progress, and it is planned to check also on revolving door entrances, Min said.

Most important variables on determining this winter infiltration, according to Min, are (1) building height, (2) indoor-outdoor temperature difference, (3) quantity of air supplied and/or exhausted, (4) traffic rate, and (5) type of building entrance, i.e., with or without vestibule.

Infiltration through a vestibule type entrance is about 50 to 60% of that through a single bank of swinging doors, depending on the traffic rate, it was found, but it is not appreciably affected by the depth of the vestibule or the presence of a marquee.

Based on a net air supply of ½ air change per hour and a traffic rate of 500 persons per hour per door, the approximate entrance infiltration in a 30-story building when the indoor temperature is 75° F. and the outdoor temperature is zero, Min said, is as follows:

(a) 900 cu. ft. per person per passage in single bank entrances;

(b) 550 cu. ft. per person per passage in vestibule type entrances.

Wind velocity is not an important factor, and it is only during periods of very low traffic rate that infiltration through cracks around the doors becomes an appreciable part of the total infiltration, the researcher also explained.

Both laboratory and field tests were made in this infiltration study.

Alton Lists Foreign Cooling Shipments

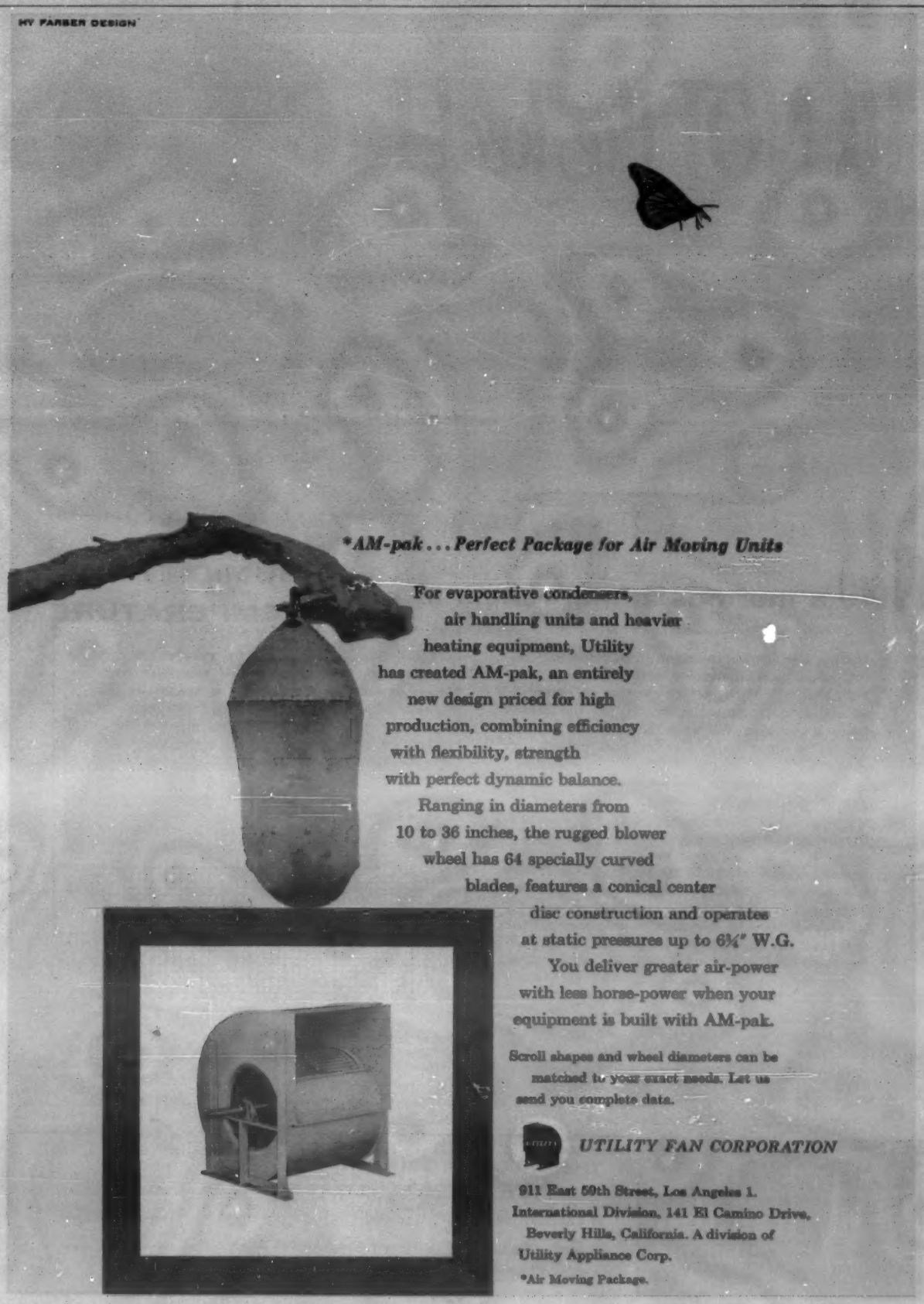
DALLAS — Alton Mfg. Co. here has shipped earlier this year four 25-ton air conditioning units to a new government hospital in Delicias, Mexico and additional units to Halifax, Nova Scotia, in Canada for use in laundries and dry cleaning plants.

Chart Helps Find Mean Difference

BROOKLYN, N. Y. — Engineers working with heat transfer problems no longer will have to work with complex logarithmic forumlas in determining *logarithmic mean temperature difference*, according to Dean Thermo-Panel Coil Div., Dean Products, Inc. here.

An 8½ by 11-in. chart has been developed which allows the determination of this mean difference immediately from known initial and final temperature differences, the company claims. The chart makes possible, also, the elimination of the short-cut method of using average, rather than logarithmic mean temperature difference in calculations.

Charts are available free from the company, according to the announcement.



**AM-pak . . . Perfect Package for Air Moving Units*

For evaporative condensers, air handling units and heavier heating equipment, Utility has created AM-pak, an entirely new design priced for high production, combining efficiency with flexibility, strength with perfect dynamic balance.

Ranging in diameters from 10 to 36 inches, the rugged blower wheel has 64 specially curved blades, features a conical center disc construction and operates at static pressures up to 6¾" W.G.

You deliver greater air-power with less horse-power when your equipment is built with AM-pak.

Scroll shapes and wheel diameters can be matched to your exact needs. Let us send you complete data.

UTILITY FAN CORPORATION

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International Division, 141 El Camino Drive, Beverly Hills, California. A division of Utility Appliance Corp.

*Air Moving Package.

Report on Education

In This Series:

MANUFACTURERS—What do servicemen think of your factory schools? What would educators like from you?

SERVICEMEN—How much advanced training is available? Where?

BEGINNERS—What kind of school should you attend? Cost? How long to complete training? Apprenticeship programs.

INSTRUCTORS—How do other instructors teach? Handle questions? Test students?

ENGINEERS—What's available at the college level? Why so little?

By Frank J. Versagi, Technical Editor

3. College Credit—Technical Institutes

In many cases, when a man chooses to continue his education and try for a B.S. he finds that the credits he earned at the technical institute are not transferable to the major colleges.

Other technical institutes, with the same courses—but with a few humanities thrown in—may issue an associate degree which is accepted at many accredited colleges around the country.

This matter of accreditation is a touchy subject among educators, especially when private, industry-supported schools and state-owned institutions are considered.

Some feel that the two-year program is essentially a vocational program; most men taking the course will never seek more formal education; therefore any attempt at issuing an associate degree, rather than a simple certificate of completion, is mere affectation. These same people feel that the people who insist that accreditation or the lack of it be considered a mark of school quality are "grinding their own axes"—usually in favor of state supported schools.

Quite a few men who have taken both kinds of training hold that "if a man is *very* certain that he will never be reaching above the trade or sub-engineering level, any good school will do. If, however, he has *any* thought of *ever* moving up to positions that call for more formal education, he should not even consider schools which are not accredited."

One inconsistency which the would-be student/employe must keep in mind is that—whatever the opinion of industry about specialized versus broad education—it still tends to attribute more prestige to accredited institutions than to non-accredited.

As with most generalities, there are outstanding exceptions to this rule. In some localities, specific technical institutes and schools have achieved respected recognition without formal accreditation.

There are those institutions which have fully integrated programs which solve this problem of moving up by adding formal education after some employment. A good example is the Milwaukee School of Engineering. Although its air conditioning and refrigeration course is now being revised, the basic set-up continues. MSOE is an industry-supported school.

First, there is a Technical Service level of courses. These qualify a man for immediate employment at the trade or apprentice level and prepare him for advanced studies.

Second is the Engineering Technician level which adds the necessary subject to make the student technician caliber. At this stage he earns an Associate Degree in Applied Science.

Finally, the student can add the necessary subjects to get his B.S. in engineering.

The controversy over accreditation will not be settled for a long time.

The student who is spending his money and time owes it to himself to think through this phase of his education program and to fit it in with his aims 10 years from now.

Getting a college education may cost from a low of about $77 per quarter to a high of about $370 per quarter. The price doesn't necessarily reflect the quality of the school, but varies with size, state, and industry aid or the lack of it, public or private, and the like.

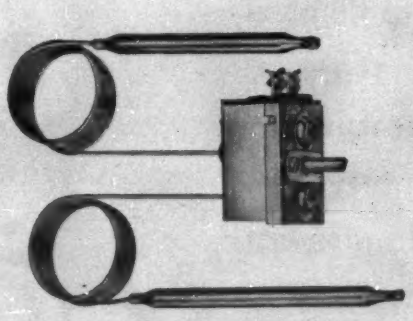
So it is possible to spend up to $4,400, for tuition alone, in getting a B.S. degree. Plus whatever living expenses are involved.

While degree requirements vary about the country, just for comparison it may be convenient to use the quarter credit method to evaluate cost. On this basis, requirements for degrees range from 120 credits to 180 credits for engineering work. The cost per credit may vary from $10

(Continued on next page)

It's NOT the heat!

(IT'S THE HUMIDITY)



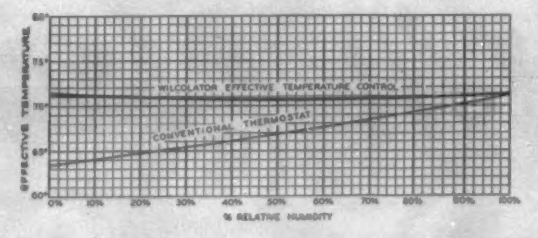
Now a thermostat that reacts to both { HUMIDITY / TEMPERATURE

Here is a major improvement in thermostatic control of air conditioners—a new Wilcolator twin-bulb thermostat that senses changes in humidity, as well as in temperature, exactly like the human body. It can give your units the extra sales appeal needed to meet today's stiffer competition successfully.

Until now, most air conditioners have not been able to give complete comfort, because they respond to temperature changes only. For example, the usual unit may do a good job of keeping a room at 72°F., but on a hot, dry day this may feel too cool. Conversely, on a muggy day, it may not feel cool enough. This is why the new Wilcolator G2-E Effective Temperature Control is so revolutionary. It responds to both temperature and humidity changes and compensates by providing more cooling on humid days, less on dry days.

The G2-E control is equipped with both a wet and a dry bulb, which combine their signals so that the thermostat controls at any selected effective temperature. In application, the wet bulb is cooled by means of a wicklike sleeve which is kept moist by condensate from the evaporator. As humidity increases, cooling by evaporation decreases, and temperature of the wet bulb rises. Hence an increase in humidity is sensed by the thermostat as an increase in temperature, just as it is by the human body. Consequently the G2-E corrects the controlled temperature to compensate for humidity change.

Write for more information on how you can profit from this newest development in air conditioning control.



Plot of typical control of effective temperature by new Wilcolator G2-E Control as compared to conventional thermostatic control of dry bulb temperature.

Thermostats for Every Heating and Cooling Application

THE Wilcolator COMPANY

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1001 NEWARK AVE., ELIZABETH, N.J.
In Canada: Wilcolator (Canada) Ltd., 221 Evans Ave., Toronto 14, Ont.
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VEGETABLE CASE

AVAILABLE IN 5' - 8' - 10' SIZES

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(Continued from preceding page) to $25. Thus, a 150 credit hour course could cost from $1,500 to $3,750.

TECHNICAL INSTITUTES

One level down from engineering colleges are the technical institutes. The term is unfortunately applied to several levels of educational institutions, even down to the trade level. Keep in mind the definition of a technician as a person whose skill and training place him above the skilled worker and below the engineer; then we can discuss technical institutes as those whose courses are at the level of the first two years of college, although actual courses may run one, two, or three years.

The relationship between some of these technical institutes and full colleges with reference to accreditation has already been discussed. So references to this level of schools in these articles will always refer to those which turn out true technicians.

A heavy concentration of publicity is aimed at those who would be technicians, for there is admittedly a great need for people at this level.

The United States Office of Education estimates that industry requires two to five technicians for every engineer. Another estimate predicts that by 1960 the country will have 22,500,000 technicians and "technical employes."

And, as mentioned earlier, the technical graduate earns $1,000-$2,500 more per year than the trade school or high school graduate.

According to the Department of Labor, there are some 71 technical institutes in the country, with a total of more than 67,000 full and part-time students.

Most technical institutes conduct both day and evening classes, and more than half of all the students attend evening or special time classes which allow them to work full time.

Perhaps 60% of the work will be shop and lab, including drafting, so that the student is prepared to take a position in industry with a good idea of the instruments, techniques, and equipment used in the field.

Some technical institutes offer cooperative training programs under which a student spends part of his time in school and part in employment related to his training. This procedure takes longer, but it has the advantages of allowing the student to help meet financial obligations and of giving him some valuable industrial experience.

Entrance requirements for technical institutes are generally less rigid than those for full colleges. While the subject matter is all post high school level, some institutes will allow entrance to those without a high school diploma if the prospective student meets "equivalent" requirements. Indeed, some allow the man to complete his high school training at the institute, if he chooses.

Education at the technical institute level is lower in total cost than the full college program, of course, but the cost per year approaches the cost of the average college education.

While some public technical institutes make almost no charge for residents of the city, it is more usual for technical institute education to cost from $150 to $300 per year—living expenses extra.

The popularity of junior colleges is largely based on cost as well as on the fact that the student can complete the first two years of college in his home city.

Full college credit hours cost from $10 to $25. Junior colleges offer subject matter of the first two years of college for from $5 to $10 per credit hour.

(Next, more on technical institutes.)

Institute Head Says Man Who Paid for Training Makes Best Employe

Electronic Trades Institute
Chicago, Ill.

Editor:

I read your first educational article with great interest. I am happy to see you bring to light the problem we have faced with the refrigeration contractors for a long time. In the season the contractor is begging for installation and repairmen, but they will only hire experienced men.

The only experienced men available are generally drifters and incompetents who are always looking for work. It is about time the contractors begin to realize that a man who wants a job bad enough to pay for training out of his own pocket is a lot better employe than a job jumper.

Many of our graduates who would make good employes make formidable competitors when they go into their own businesses. They are willing to do a job for less and they do good work because they are anxious to get started and they are trying to please the customer.

The independent contractor is making a big mistake when he loses a willing, conscientious employe because he looks for questionable experience instead of good honest training.

HAROLD M. RABIN,
President

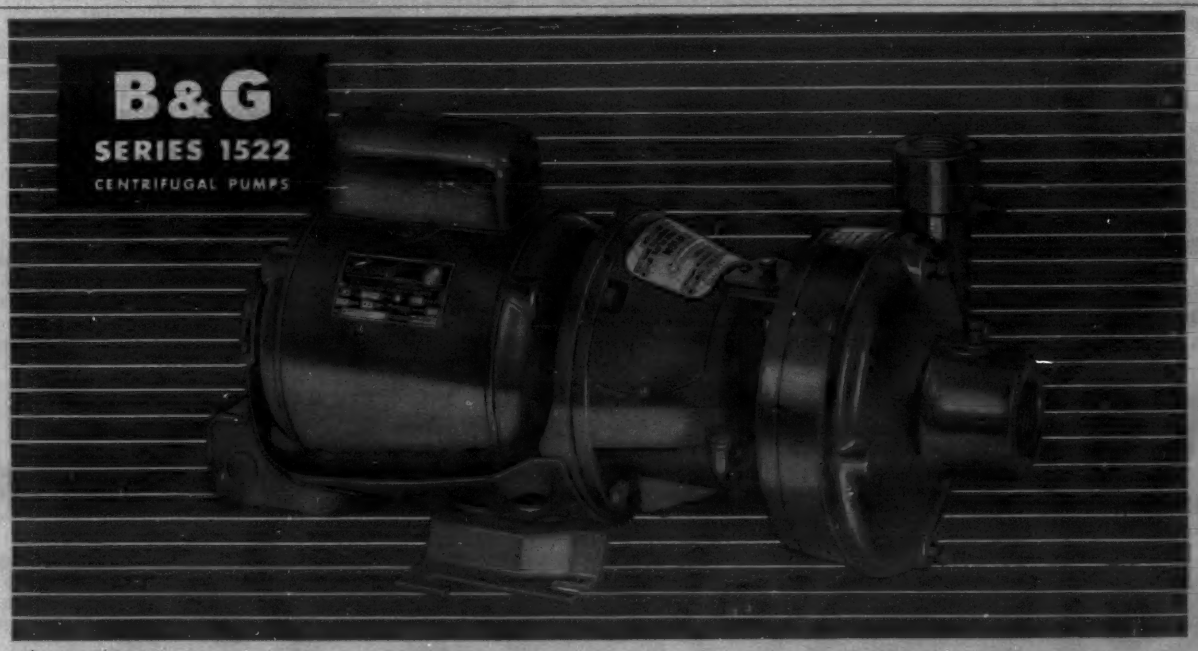
Robertshaw-Fulton to Build $2.5 Million Plant Near Youngwood

YOUNGWOOD, Pa.—Robertshaw-Fulton Controls Co. will build a $2.5 million plant for production of thermostatic control devices for home appliances and industry near Youngwood on the Pennsylvania Turnpike.

T. T. Arden, president, said the new plant will replace present manufacturing facilities operated at Youngwood and at nearby Scottdale by the firm's Robertshaw Thermostat Div. The company has a foundry at Scottdale and manufactures the control devices here.

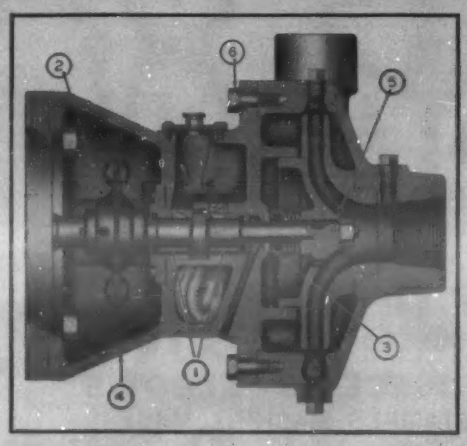
Principal reasons for the building program, Arden said, are to provide room for expansion of the facilities and to incorporate more efficient manufacturing techniques. He said that there is no room for expansion at the plant here.

About 1,200 workers now are employed at the two plants. This figure will remain about the same when the new plant is opened, Arden stated. The new facility will be ready for operation in about 18 months. Plans call for a modern one-floor manufacturing building designed for in-line production, with an adjoining office building, according to the firm.



REALLY Quiet!

...your answer to noise problems in cooling tower installations



In the B&G Series 1522 Pump, noise has been engineered out... together with usual causes of unsatisfactory performance.

The cut-away illustration at left tells the story—

1. Long bronze sleeve bearings in both the pump and motor assure quiet operation.

2. Spring-type flexible coupling makes a noise-dampening connection between pump and motor.

3. "Remite" Mechanical Seal positively ends leakage. Harder than glass—wearproof—self-lubricating.

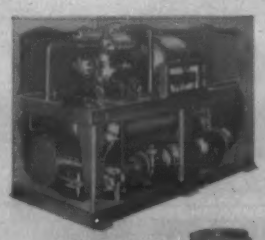
4. Bearing bracket sub-assembly, including shaft and sleeve bearing, is easily removed and is interchangeable in all B&G 1522 Pumps.

5. Dynamic balancing of the impeller prevents shaft vibration and seal failure. Balancing chamber and relief holes eliminate thrust load on pump bearings.

6. Easily serviced. Removal of a few bolts permits separation into three parts.

B&G Series 1522 Pumps are available as all-iron, bronze-fitted, all-bronze or stainless steel units. Capacities to 150 GPM, heads to 115 ft. Send for catalog.

COMPLETE LINE OF AIR CONDITIONING PACKAGE CHILLERS AND COMPONENTS



PACKAGE LIQUID COOLERS
Completely integrated cooling units for apartments, commercial and industrial buildings, process work

EVAPORATORS AND CONDENSERS
Plus values in efficiency designing—built to ASME Code requirements.

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Featuring exclusive, leak-proof "Remite" Mechanical Seal—*quiet* operation. Ideal for air conditioning installations.

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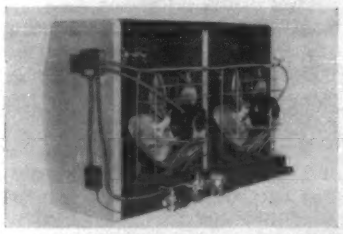
COMPANY
Dept. FK-47, Morton Grove, Illinois
Canadian Licensee: S. A. Armstrong Ltd., 1400 O'Connor Drive, Toronto 16, Ontario

Olsen Announces Commercial, Industrial Units



A new line of "Luxaire" direct-fired gas unit heaters for installation in commercial, industrial, or farm buildings has been announced by the C. A. Olsen Mfg. Co., Dept. AC&RN, Elyria, Ohio.

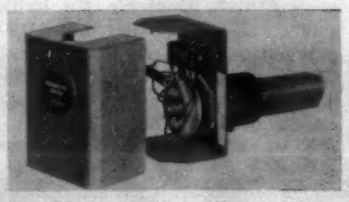
Prices will be the same as for the models which the new units replace.

The new Luxaire unit heaters are available with heating capacities of 60,000, 90,000, 120,000, 180,000, and 240,000 B.t.u. input. In the case of the three larger sizes these ratings represent an increase from 115,000 to 120,0000 B.t.u., 170,000 to 180,000 B.t.u., and 230,000 to 240,000 B.t.u., respectively.

The three smaller sizes have a single heating element and fan, while the two larger sizes are comprised of twin heating elements and twin fans, housed in the same cabinet.

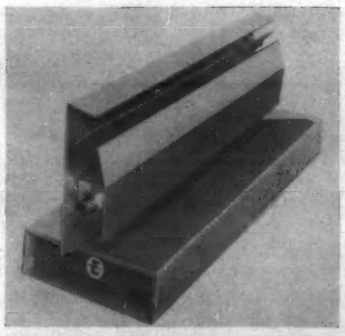
Watkins Offers New Thermolevel Switch

A new thermolevel switch to provide switching action on rise or fall in liquid levels was introduced recently by the J. E. Watkins Co., Dept. AC&RN, 307 Lake St., Maywood, Ill.



Two thermostats and a heater are located in the probe section. When liquid rises to probe, temperature drop makes the heater circuit through one thermostat and trips the other switching thermostat. When liquid falls away from probe, probe temperature rises rapidly, reversing switch action.

Watkins uses this switch to control levels and pumping action in its suction trap and liquid recirculating equipment.



Pre-Cut, Pre-Assembled Baseboard Available

A pre-cut, pre-assembled, prepacked baseboard is now being manufactured by Embassy Steel Products, Inc., Dept. AC&RN, 890 Stanley Ave., Brooklyn.

Named the "Red-E-Pak," the baseboard is available in 2, 3, 4, 5, 6, 7, 8-ft. lengths. It is completely assembled with front and back panels, element, free damper, and hanger brackets, the company said.

Red-E-Pak can be double tiered.

Insul-Coustic Line Features Low Cost

Complete line of Insul-Coustic coatings and sealers offers insulation contractors and plant maintenance engineers low-cost protection, vapor barriers, color coding, weatherproofing, and improved appearance, according to Insul-Coustic Corp., Dept. AC&RN, 42-23 54th Rd., Maspeth 78, N. Y.

The new products have been developed "to meet the need for special properties in coatings, to handle such difficult jobs as high-pressure seals for high-velocity air handling systems; low-cost protective coatings for plastics, masonry, metal; and weather-resistant 'breather' coatings for heated equipment," the company pointed out.

Products included are IC 110, "Sure-Kote"; IC 301, "Weather-Sure"; IC 320, 321, "Vapo-Sure"; IC 330, 331, liquid asphalt emulsions; IC 340, cork-insulating mastic; IC 405, "Sure-Joint"; IC 450, high pressure sealer; IC 503, fire-retardant vapor barrier; IC 520, vapor barrier finisher; IC 516, aluminum-asphalt; and IC 526, asphalt sealer.

Temperature Controller Uses Thermistor Probes

Direct dialing, model 71 YSI "Thermistemp" temperature controller is announced by the Yellow Springs Instrument Co., Dept. AC&RN, Yellow Springs, Ohio.

Utilizing thermistor probes as sensing elements this controller can be set to any desired temperature from -6° C. to +124° C. directly and the control point will be within an accuracy of ±0.5° C. of the desired temperature.

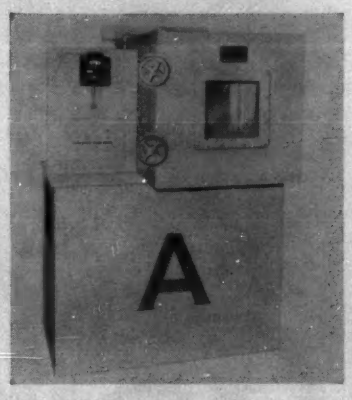
When necessary the control temperature may be set more exactly by means of a vernier fine control incorporated into the instrument. Sensitivity is better than ±0.05° C., and control to ±0.01° can be achieved.

The controller has a double pole double throw relay capable of handling 10 amp. loads directly. One set of relay contacts activates two 110-volt convenience outlets to provide control of heating or cooling loads; the other set is brought to a barrier strip at the rear of the instrument.

By means of the barrier strip different voltage heat sources can be activated, remote signalling arranged, or different thermistor probes used to give the controller an arbitrary set range of -35° to +220° C.

Associated Introduces New Test Chamber

A new environmental test chamber for low-high temperature testing in the range of -100° to 800° F. has been announced by Associated Testing Laboratories, Inc., Dept. AC&RN, 112 Clinton Rd., Caldwell, N. J.



The "Freon-13"-"Freon-22" cascade-type unit is said to be highly efficient, with accuracy to within ±2° F.

"Air-cooled compressors assure ease of operation and blower motors are externally mounted for accessibility," it was pointed out.

Working dimensions are 18 in. by 18 in. by 18 in. (internal volume 3.4 cu. ft.). A multipane window (optional) provides full view of the chamber interior. Interior is stainless steel "Heliarc" welded and exterior is enameled "Galvanneal." Insulation is 7-in. thick wall of high density "Fiberglas."

Price is $2,250 plus the cost of optional features.

'Moisture Reactor' Developed for 'Liquid Eye' Line

Development of a simplified, economical "Moisture-Reactor" unit built into its "Liquid Eye" indicators to detect the presence of moisture in Refrigerant-12 and 22 systems has been announced by Allin Mfg. Co., Dept. AC&RN, 410 N. Hermitage Ave., Chicago 22.

"The Moisture-Reactor is composed of alternate, permanent, and changing (Reactor) color bars," it was explained. "If there is no moisture in the system, all the color bars will be green. But when you see alternate colors (green and yellow), this is the warning that moisture has entered the system, and dehydrator efficiency must be checked.

"When the line is moisture-free again, the Reactor color bars will change back to their original solid green color."

The Moisture-Reactor unit "is positioned in the center of the Liquid Eye indicator viewing ports —directly in the refrigerant stream," the announcement said. "There is no flow obstruction, and no sediment can lodge within the bars to obscure readings."

Evaporator Adapted For Adding Cooling

Evaporators especially adapted for adding air conditioning to forced-air furnace heating systems are being manufactured by Magic Aire Div., United Electric Co., Dept. AC&RN, 501 Galveston St., Wichita Falls, Texas.

A wide range of sizes is offered including 2, 3, 4, 5, 6, and 7½ tons for updraft furnaces; and 2, 3, and 5 tons for counter-flow furnaces. A space-saving "A" design is used which lends itself well to many furnace sizes, the company noted. Coils utilize ⅝-in. o.d. copper tubing and heavy-gauge aluminum fins.

"Coil features include engineered refrigerant distributor for equal, resistance-free distribution that can accommodate either Refrigerant-12 or 22, and requires no special orifice; heavy-gauge 'Bonderized' steel cabinet with baked-on 'Epon' enamel and accessibility for service; one-piece galvanized condensate drain pan; and ⅝-hard aluminum fins with fin collars."

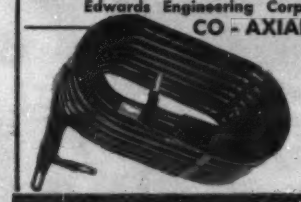
Edwards Airvec Supplies 10 Tons of Air Conditioning To New Florida Supermarket*

EDWARDS Airvec Condenser Utilizes Convection Principle. Eliminates Noise, Motors, Maintenance, Structural Problems.

Heat rising from the horizontal condenser creates a chimney-like draft that continues to draw fresh air through the unit. Manufactured in 2, 3, 5, and 7½ ton basic sections, which then can be assembled in multi-sections for unlimited capacities up to hundreds of tons.

This principle eliminates: Noise, Motors, Wiring, Maintenance, Operating Problems. WRITE Airvec Dept., Edwards Engineering Corp. Manufacturers Agents Inquiries Invited.

CO-AXIAL FREON CONDENSERS



- COST REDUCED 30% to 40%
- CONDENSER WATER REDUCED 35%
- Refrigerant Charge Reduced
- Stabilizes Capillary Performance
- Smaller Cooling Towers Required
- Shipping Weight Reduced
- Many Shapes and Sizes Available
- Sea Water Models Available

EDWARDS ENGINEERING CORP.
103 ALEXANDER AVENUE • POMPTON PLAINS NEW JERSEY

*Daylight Grocery Co., 1003 Florida Avenue, Jacksonville, Florida

ANNOUNCING

A New, Smoother Path For Hot or Cold Air

IDEAL FOR HIGH VELOCITY SYSTEMS

"Laminair-Flo"

TWO-PIECE 90° ELBOWS
DIE-STAMPED MACHINE MADE

Precision engineered, die-formed, two-piece elbows reduce friction loss considerably . . . systems are far more efficient. Production line manufacturing reduces costs . . . elbows can be specified with guaranteed uniform size and performance.

Complete Range Of Uniform Size, Die-Stamped Elbows In 3", 4", 5", 6", 7", 8" Diameters 20 Ga. Galvanized Steel — Continuous Everdur Weld

Write Division 91 For Price Information And New Engineering Test Data

LESS FRICTION LOSS

- Reduced Static Head Loss
- Cold Forged in Precision Dies
- True Radii
- No Variations in Workmanship
- Uniform Consistent Data

UNITED SHEET METAL CO., INC.
Representatives In Principal Cities In United States And Canada
540 SOUTH DREXEL AVENUE, COLUMBUS 9, OHIO

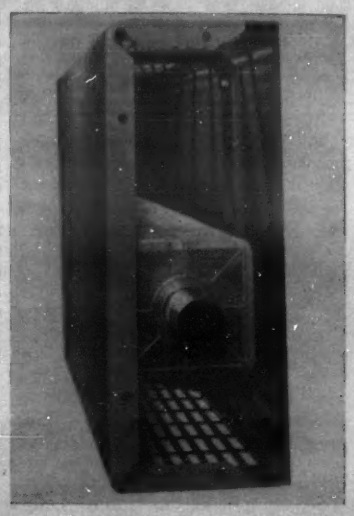
FOR MORE INFORMATION ON THE PRODUCTS DESCRIBED ON THIS PAGE
Write Directly to the Company—*at the Address Given in the News Item*

Type Q Finned Radiation Suited to Schools

Particularly adaptable to school buildings, new Herman Nelson "Type Q" finned radiation and enclosures have been introduced by American Air Filter Co., Inc., Dept. AC&RN, Louisville 8, Ky.

Heating element is constructed from seamless copper tubing and aluminum fins. Finned elements nest on support cradles.

All elements can be used with any type of steam or hot water system for pressures up to 100 p.s.i.g. and temperatures up to 330° F. with either manual or automatic controls. Steam ratings range from 1,130 to 2,840 B.t.u. per lineal foot.



Bolts extending through support brackets also mount back panel to wall. Front covers, inside and outside corners, sleeves, valve compartments, and filler sections merely snap into place.

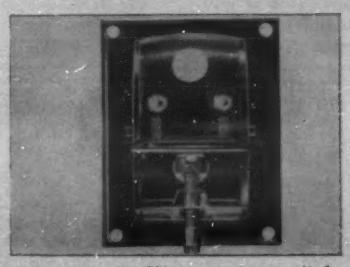
New Control Helps Solve Three Problems

A new pilot-operated liquid level control for water admitted to feed water heaters maintains any desired level within 2 in.—1 in., plus or minus the setting, is announced by Stickles Steam Specialties Co., 2215 Valley Ave., Indianapolis 18.

The control consists of exterior float, pneumatic pilot, and diaphragm motor valve. Slightest float movement causes the pilot to apply or release pressure on the diaphragm motor valve to open or close the feedwater inlet.

By equalizing the flow of water into the heater, the new control helps solve three common problems. It prevents sudden and excessive demands for both water and steam, and stops overloading of water treating equipment. At the same time, it provides greater uniformity in temperature and oxygen content of water.

Switch Warns of Need for Filter Change



A new air filter service switch, for operating a warning light to indicate need for air filter replacement, is now being made by Bacharach Industrial Instrument Co., Dept. AC&RN, 200 N. Braddock Ave., Pittsburgh 8.

The switch is said to be particularly suited for central heating and cooling systems in domestic installations and packaged air conditioners in stores and offices, as well as for room air conditioners, unit ventilators, and similar cooling and ventilating appliances.

The switch, model MNE, "accurately senses when it is time to change air filters, and closes the electrical circuit which causes the filter warning light to glow," it was stated. "Certain thermostats are currently offered with built-in or accessory filter warning lights, or such a light may be installed separately."

Model MNE switch is suitable for either single pressure connection (between filter and blower) or differential pressure connections (across the filter) using ¼-in. i.d. hose, the company said. A unique feature claimed for the switch is that it is easily adjusted in the field to signal dirty air filter resistance corresponding to any selected pressure differential across the filter between the limits of 0.05 and 1 in. of water.

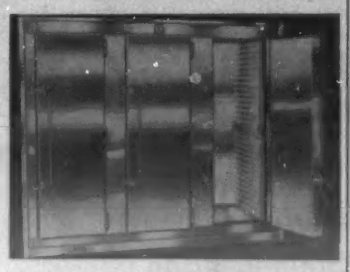
The switch is 2⅜ in. wide by 3⅛ in. high by 2½ in.; weighs 5 oz.; has electrical rating of 0.25 amps. at 26 volts a.c. or d.c.

King Announces New Kitchen-Center

A new all-in-one kitchen-center with 5-cu. ft. refrigerator and freezer has been announced by the King Refrigerator Corp., Dept. AC&RN, 76-02 Woodhaven Blvd., Glendale, L. I., N. Y.

Although the new unit measures only 30 in. wide by 36 in. high by 23½ in. deep, it also has a full size sink with aerator faucet and an electric or gas table top range with two burners. Refrigerator door has two shelves to accommodate large bottles.

In addition to this new model, King will also manufacture all-in-one kitchens measuring up to 48 in. in width, which will include a complete stove (range and oven). Some models will be available with porcelain-enamel tops as well as stainless steel.



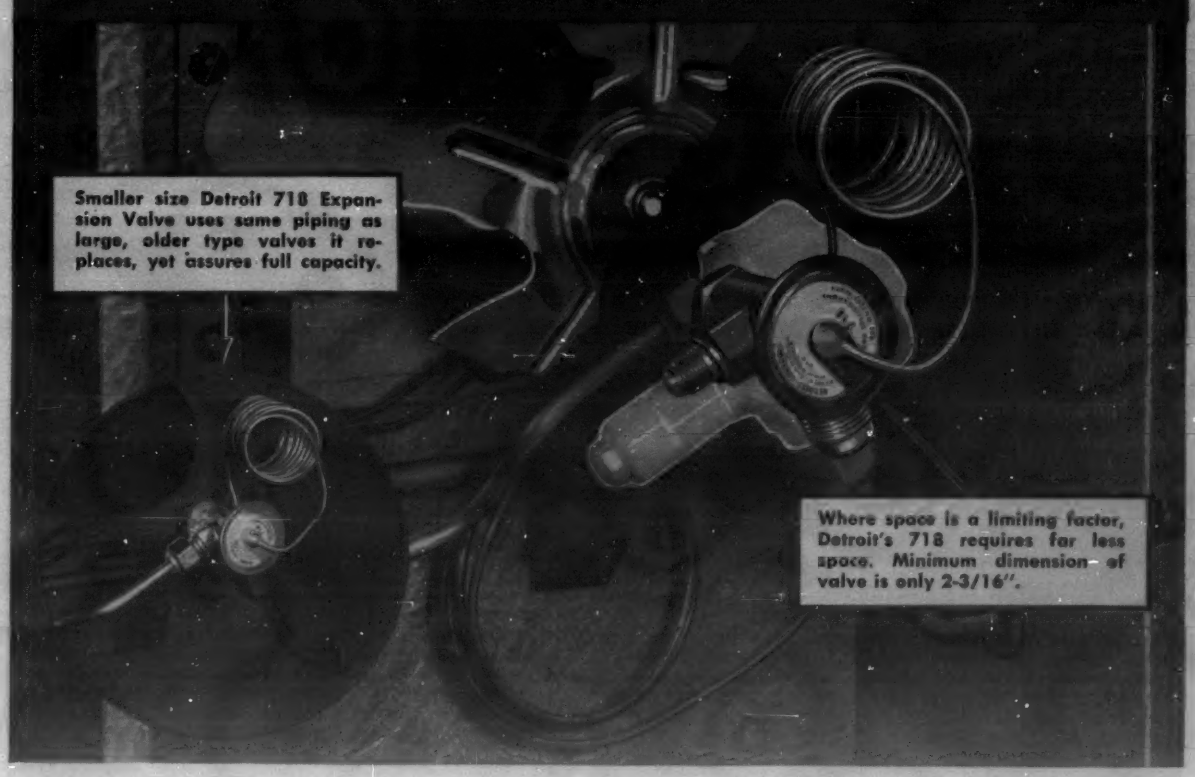
Frigid Igloo-Bows 1959 'Trim-Line'

New "Trim-Line" design marks its 1959 line of baked goods freezers, dough retarders, and reach-in refrigerators, it was announced by Frigid Igloo Mfg. Corp., Dept. AC&RN, 360 Ashburton Ave., Yonkers 2, N. Y.

Constructed of all welded steel, Trim-Line features full length doors operated by double-action handles. Other features include breaker strips between inner-shell and exterior of case to prevent conductivity of cold from the inner-shell to outside of case. Heavy-duty 3/16-in. pan racks with 1½ or 2-in. spacing are easily removed for cleaning, according to the company.

The entire line is available in 31 different models, remote and self-contained. The various finishes are: All stainless steel, stainless steel front and balance of case in aluminum, all white baked enamel or color.

SEE . . how DETROIT'S 718 Compact Capacity Valve will replace older type valves without repiping



Smaller size Detroit 718 Expansion Valve uses same piping as large, older type valves it replaces, yet assures full capacity.

Where space is a limiting factor, Detroit's 718 requires far less space. Minimum dimension of valve is only 2-3/16".

For Maximum Efficiency and Dependability, replace older valves with DETROIT'S 718 Expansion Valve

- **Smallest Valve per Ton of Refrigeration** — Broader use in more limited spaces
- **Close Superheat Control** — Minimizes surge for maximum valve operating efficiency
- **Broad Range of Application for its Size** — ½ to 3 tons R-12 ½ to 5 tons R-22
- **Custom Charges** — L, C and Z charges available
- **Easier to Service** — Entire valve easily disassembled for inspection or cleaning
- **Connection Sizes** — ¼ and ⅜ S.A.E. Inlet with strainer; ½ S.A.E. Outlet

For complete information see your DETROIT Wholesaler or write for Bulletin 262.

Detroit Controls Division of American-Standard, 5900 Trumbull Avenue, Detroit 8, Michigan

Canadian Representatives: R. & E. REFRIGERATION & HEATING SPECIALTIES LTD., Montreal, Toronto, Winnipeg

American-Standard

You Asked About It

From the many requests for information it receives, the NEWS will select and publish some of general interest. In many instances, the answers will be supplied by authorities in the industry.

Q. We run our Admiral freezer off of a portable generator. We keep quite a bit of food in it, and are wondering just how long each day we must run the freezer to protect our food. Will three hours of running time be sufficient? C.C.C.—Buenos Aires, Argentina

A. The NEWS went back south of the border for the answer to this question. James H. Hill of O Americano, Salvador, Bahia, Brazil, gave us an answer.

Says Senor Hill, "This is just the type of information I am asked for almost daily.

"Since many of these people live in sections of the country that are not served by high lines, they have either diesel or gasoline motor units, the engine used to pump water and at the same time furnish electricity for lights and probably appliances.

"In this case, the gentleman wishes to run his diesel only three hours during the 24 to freeze a complete cabinet of meat and other products, and of course, this will not be enough running time.

"Since he does not state exactly where in the country his freezer is located, and by that I mean at high altitude where it would be fairly cool even in summer, or in a low lying part of the country where no doubt it would be very hot, similar to Detroit or Chicago weather during the summer, the only recommendation I can offer is that the machine should be run for at least 18-19 hours a day.

"If he is going to use the box during the day, he may have to run it up to 22 hours for three or four days until the entire load is brought down to a good low temperature.

"In this particular case, I believe that a kerosene or bottled gas refrigerator will be a better bet than an electric machine."

Thinking of —

- **changing territories**
- **expanding your territory**
- **taking on new lines—**

Check the CLASSIFIED ADS

Your opportunity may be there.

Now Representing...

McQuay, Inc.—SWEIGER-DAVIDSON CO., Chicago, has been named heating and air conditioning representative.

The Bastian-Blessing Co.—Appointment of two new distributors in Ohio—ALTA FOUNTAIN & FOOD EQUIPMENT, INC., Cleveland, and OHIO STORE FIXTURE CO., INC. of Bath—has been announced.

The Mathes Co.—AIR CONDITIONING & HEAT PUMP DISTRIBUTORS, INC., Riverside, Calif., was named distributor of room air conditioners and central air conditioning equipment in Riverside and San Bernardino counties. SOUTHWEST SUPPLY CO., San Diego, Calif., was appointed distributor of central system equipment for San Diego County.

Tuck-Aire Furnace Co. (San Francisco)—IRVINGTON SALES, INC., Buffalo, has been appointed manufacturer's representative for the "Atlas" and "Western" brand of heating and cooling equipment.

Ilg Electric Ventilating Co.—JOHN M. DOOLEY has been named Knoxville representative.

Cambridge Filter Corp. (Syracuse, N. Y.)—ALFRED J. HAMILTON, West Hartford, has been appointed representative for Connecticut. He replaces ROBERT H. AVERY who moved to Syracuse to take charge of advertising and technical information services.

H. C. Little Burner Co., Inc., (San Rafael, Calif.)—Appointment of two factory representatives has been announced. DALE BLOMQUIST will cover the Salt Lake City trading area and BEN T. CLARK will serve the Denver and adjacent territories.

Recold Corp.—TEXAS REFRIGERATION SUPPLY CO., with headquarters in Fort Worth, has been appointed a distributor of air conditioning and commercial refrigeration products.

Dryomatic Corp.—Appointment of DAYREL G. HOKE as exclusive representative in the Philadelphia metropolitan area has been announced.

Howard Refrigerator Co., Inc.—Two new field representatives for commercial products have been appointed. WILSON ASSOCIATES of Dallas is covering Oklahoma and Texas with the exception of El Paso. JACK FINLEY of Wichita, Kan. is sales representative in Kansas, Missouri, and Nebraska. JACK DEVLIN of Evanston, Ill., formerly field sales representative in the Wisconsin, Illinois, Indiana territory, has been advanced to midstates sales manager covering this general sales area.

Liquid Freeze Corp. (Oakland, Calif.)—MOORE & HANKS CO. of Los Angeles has been appointed exclusive distributor in southern California.

Evansville Div., Bendix-Westinghouse Automotive Air Brake Co.—SAM STEIN and ERNIE MANKOWSKI have been named representatives in the western Michigan, northern Illinois, Wisconsin, and Minnesota area, replacing Dennis Miller who has resigned. Stein has been engaged in manufacturer's representative activities in the Chicago area for the past 10 years. Mankowski was formerly chief engineer of residential units at Mitchell Mfg. Co. Their company is known as Spartan Engineering Co.

Carrier Promotes Steitler, Egan

SYRACUSE, N. Y.—Two executive promotions in Carrier Corp. have been announced by William Bynum, president.

W. H. Steitler

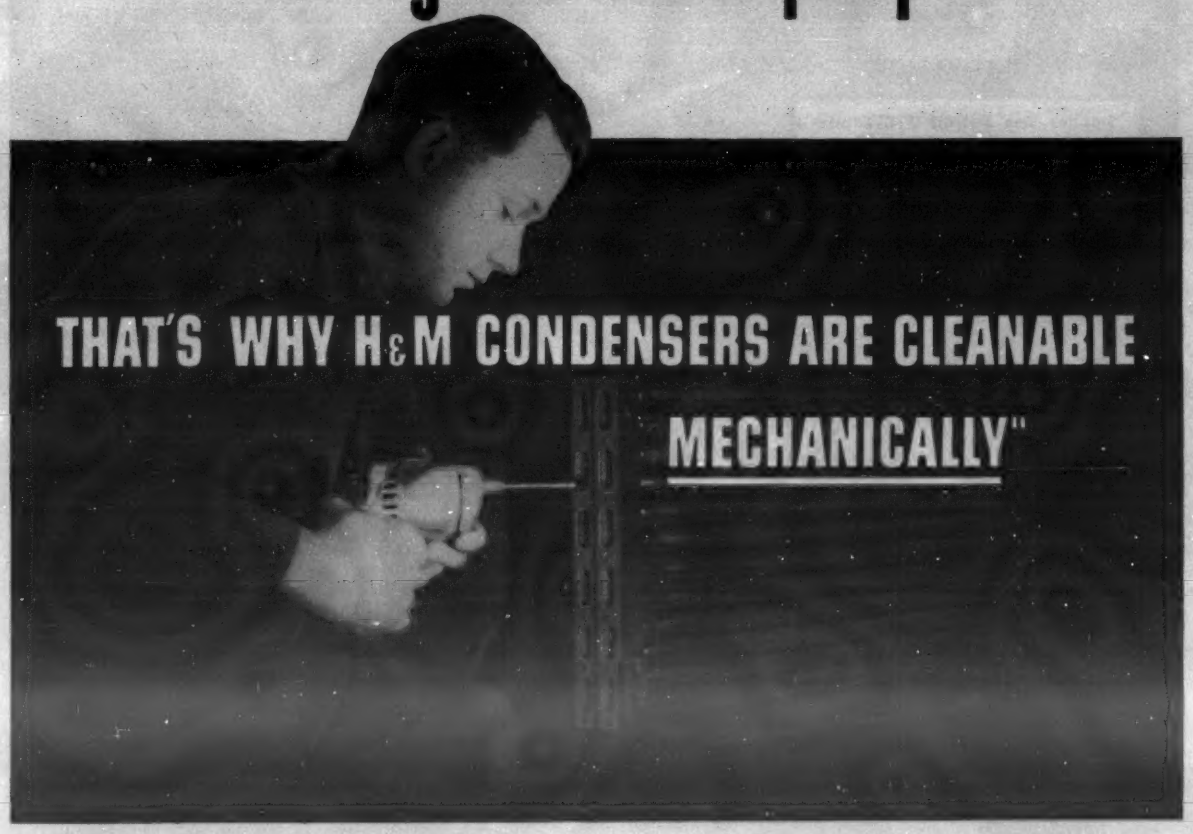
Walter H. Steitler, president of Carrier-Houston Corp., a wholly - owned distributorship at Houston, Tex., moves to corporate headquarters here as assistant to the president.

W. C. Egan

William C. Egan, sales manager of packaged equipment in the Unitary Equipment Div., transfers from Syracuse to Houston to succeed Steitler.

SO HALSTEAD & MITCHELL ENGINEERS SAID:

"Harsh chemical cleaners ruin condensers, cooling towers and pumps



Scale and sludge which reduce heat transfer can be removed easily from Halstead & Mitchell *Cleanable* Water-Cooled Condensers. A simple, spiral cleaning tool—available from your local H & M distributor—and an ordinary electric drill can be used to clean the water tubes safely, mechanically. No need to use strong chemicals, which can seriously shorten the life of your condensers and ruin cooling towers and pumps, too.

H & M Condensers have double-tube design, seamless copper tubes. Counterflow of refrigerant and water assures maximum heat exchange. Brass headers are quickly removed for cleaning. All H & M units are U/L approved for use with Refrigerants 12 or 22.

ALL H & M WATER-COOLED CONDENSERS ARE CLEANABLE

STANDARD DUTY (Type EL) are made with extended surface water tubes. Ideal for water-cooled systems under all average conditions. ⅓ thru 3 tons.

HEAVY DUTY (Type T) condensers have a highly favorable fouling factor and are designed for long service between cleanings. ⅓ thru 25 tons.

SEA WATER DUTY (Type SW) are made with cupro-nickel water tubes and naval brass headers for resistance to impure water. ⅓ thru 25 tons.

Halstead & Mitchell

Ask for H & M products at your distributor's. Write for descriptive literature. Halstead & Mitchell, Bessemer Bldg., Pittsburgh 22, Pa.

WATER-COOLED CONDENSERS • COOLING TOWERS • AIR COOLED CONDENSERS • FINNED COILS

Air Distribution Requirements In Year-Round Air Conditioning

Part 2-Fundamentals of Air Handling

By Frank D. Klein, Chief Engineer, Governair Corp.

Tutt, Richard D. Madison, Clifford Strock among others are and have been recognized authorities in the field of air flow and air handling. It is because their particular work forms such a practical application to the day-to-day work of the equipment and systems design engineer, that we find wide application of their recommendations.

These articles are liberally sprinkled with their authentication; by passing on this information in abstracted form, coupled with other corrected and applicable data, it is intended that the engineers concerned and interested will recognize and absorb, as well as have, ready reference data, at his command.

In the preceding information sufficient data has been offered by which the systems designer can approach his particular problem of duct design with some assurance of confidence, for in brief what has been said is that:

IN ARRIVING AT THE REQUIRED DUCT SYSTEM BY DESIGN:

A. Analyze the problem from the standpoint of (1) the quantity of air to be handled in total;

B. Analyze the problem from the standpoint of (2) the quality of air to be handled in detail;

C. Select the mechanical equipment necessary ONLY ON A PRIMARY BASIS FIRST, then

(1a) distribute the total quantity of air to be handled according to detail requirements for the space or spaces concerned.

(1b) Select the type outlets to do the job, sizing them on the pattern of air distribution for the space or spaces involved.

(1c) Analyze all construction problems; in other words survey the simplest layout possible on the basis of architectural requirements.

(1d) Layout all main supply ducts.

(1e) Layout all branch supply ducts.

(1f) Determine which duct in the entire system offers the greatest resistance to air flow, between the supply fan and the last outlet, and determine this friction loss.

(1g) To this friction loss, calculate and add the amount equal to the TOTAL PRESSURE required by this last outlet PLUS the friction loss involved in the take-off to the outlet.

(1h) Consider then the total addition of the above to be the STATIC PRESSURE POTENTIAL CAPABILITY that the supply fan must have in order to maintain air flow in the system, less Suction Static.

(1i) For a final check, based on the duct having the greatest resistance, use this design restance as expressed in INCHES WATER GAUGE, to size once again the main ducts and the branch ducts. They should check.

(1j) Determine the friction loss in the RETURN AIR DUCTS; add to this any internal friction losses involved in the mechanical and or air handling equipment itself.

(1k) Add the results of (1h) and (1j) which will produce the TOTAL STATIC PRESSURE of which the supply fan must be capable of operating against in order to maintain air flow.

It is the intent and purpose of the equipment manufacturer to provide the systems designer with equipment that places him in a position to select equipment that will "fall-in" into the requirements revealed by his systems analysis and design. It should never be either the function nor habit of the systems designer to select *marginal equipment* nor on the other hand slight his systems design. "Cheating" in either case or both is not only impractical, uneconomical in the long run but dangerous.

(To Be Continued)

Data on Design, Layout, Installation for High Velocity Dual-Duct System Offered

NEW YORK CITY — Complete reference material on the design, layout-and installation practice for high velocity dual-duct systems has been made available by Buensod-Stacey, Inc., the company announced.

Title of the reference bulletin, available free from the company, is "High Velocity Dual Duct Systems for Multi-Zone Installations." The New York company is a contractor and manufacturer of air conditioning equipment and dual duct mixing units.

The 24-page illustrated and diagrammed article was prepared by N. S. Shataloff, engineering consultant for Buensod-Stacey. Advantages and disadvantages, problems and answers associated with particular applications are covered. Construction details for rectangular high pressure ducts and design and detail proceudres are included with practical information of value both to the design engineer and contractor, it was stated.

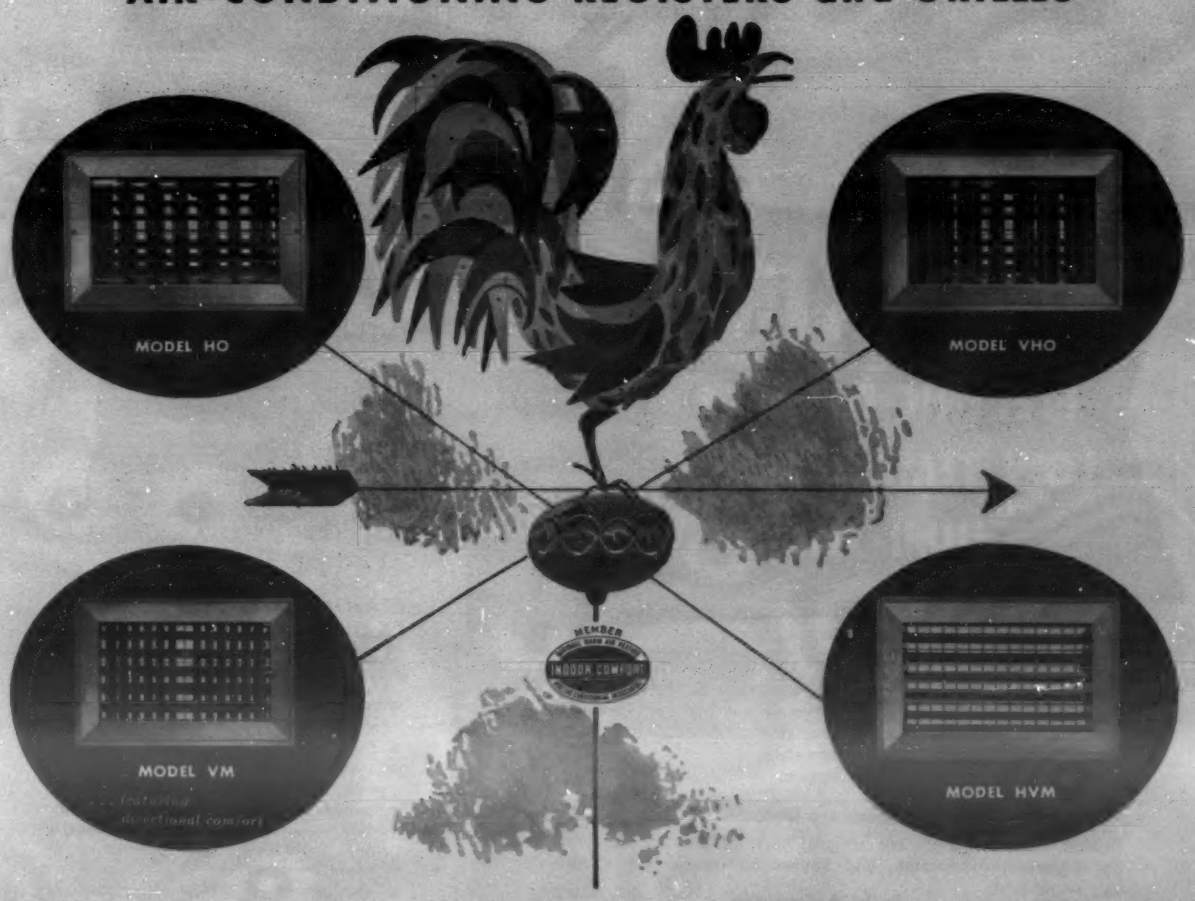
A second section covers basic schemes of air distributing systems, dual duct air handling apparatus, budget costs for such systems, automatic control, winter and intermediate season operation, and dual duct construction and specifications.

Reprints of the Shataloff article are available from Buensod-Stacey representatives in 43 cities and from the company, 45 W. 18th St., New York 11.

NEW! from STANDARD

the *modulaire* SERIES

AIR-CONDITIONING REGISTERS and GRILLES



Standard introduces a new line of air-conditioning registers and grilles with **MODULAIRE.** Standard calls this concept "directional comfort" and it means just what it says . . . the right pattern and velocity of cool air for any given air-conditioned space. There are **MODULAIRE** models available with a variety of face bar combinations (horizontal and vertical; single and double bank) with either opposed blade dampers or multi-valve louvers . . . models to fit any need . . . any application. Write for Standard's new catalog!

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Los Angeles Advisory Committee To Let Present Ammonia Provisions In Code Stand

LOS ANGELES — The advisory committee which formulated changes now proposed for the City of Los Angeles refrigeration code decided to leave proposed ammonia provisions as they are after hearing bottling plant representatives.

Present code requires every refrigerant compressor and container which is a portion of the high pressure side of every refrigerating system containing more than 100 lbs. of refrigerant shall be located in a machinery room.

The advisory committee changes provide every refrigerating condensing unit of 50 or more horsepower rating which contains any Class 1 refrigerant, shall be enclosed in a machinery room.

Also, that every refrigerating condensing unit of over 10 hp. rating which contains any Class 2 refrigerant shall be enclosed in a machinery room.

Class 2 includes ammonia.

Some of the plants have Mojonnier Bros. Co. carbo-coolers as part of their high-speed bottling equipment. They were concerned about existing code provisions, as well as proposed provisions.

The Div. of Heating & Refrigeration cited cases which did not have legal installations under existing code.

One was installed without a permit and was not inspected until found through a referral from another type of inspection.

Another case had a permit. The H & R inspector found the violation on the first inspection and notified the contractor a machinery room is required.

It has been brought out that Mojonnier now has a unit which used R-22 but only one or two of this type have been installed so far.

Information affecting the ammonia issue put before the Mechanical Bureau of the Los Angeles City Dept. of Building & Safety states some large terminal warehouses and ice plants have gone to Class 1 refrigerant, one in Utah, and others in the midwest.

166 Ft. of Cold

ATLANTA — Winn-Dixie's newest supermarket, a 22,000-sq. ft. outlet in Broadview Plaza Shopping Center, features 88 running feet of frozen and refrigerated meat cases and 78 linear ft. of frozen food display counters.

Court Rules on Bid-Depository--

(Concluded from Page 1)

ing and heating and ventilating; except that a combination bid for the three could be made if the combination were not more than 5% below the total of the bids that had been combined. This rule was said to limit the 'freedom of a combination bidder to submit a truly competitive bid which might result in a decrease in the cost to the general contractor.'

"A second rule upon which the court frowned was one requiring each successful subcontractor to pay the depository 1% of his contract award, with a ceiling of $1,000 on each payment. Because this assessment provided substantially more revenue than was needed for the maintenance of the depository, and because some subcontractors looked upon it as an element of cost in calculating their bids, it was held to be 'price tampering.'

"The third rule disapproved by the court permitted the withdrawal of a bid by a subcontractor after the bids were opened by the depository and before they were made available to the general contractors. On withdrawing a bid, however, a subcontractor had to pay the depository 1% of the total amount of the bid, with the 'penalty' not to exceed $1,000. There was evidence, the court said, that successful bidders had reimbursed withdrawing bidders in the amount of the penalty. For that reason the rule was said to invite collusion in determining price.

"Under a fourth rule, the depository would submit subcontract bids only to general contractors who agreed to accept and use the low bid submitted to him by the depository. The court commented that this rule prevented a subcontractor who bid through the depository from submitting bids to contractors who did not sign the agreement; and that it prevented a general contractor who signed the agreement from accepting bids from subcontractors who did not bid through the depository. While the rule appears to create a boycott, the court held it was a reasonable means of accomplishing the depository's aims, and that it did not unreasonably restrain trade.

"Another rule upheld by the court required a subcontractor who intended to subcontract any plumbing, heating, ventilating, sheet metal, or electric work to name the subcontractor to be used; and to use such subcontractor 'in the absence of showing good cause' for making a change.

"Apart from the opinion's significance on the subjects of bid shopping and bid peddling, antitrust lawyers will cringe at the court's use of the term 'price tampering.' For 18 years, they have been trying to curb the application of the Supreme Court's broad statement in the *Socony-Vacuum* opinion that 'Any combination which tampers with price structures is engaged in an unlawful activity.' *(U. S. v. Socony-Vacuum Oil Co.*, 310 U. S. 150, 222-223, 1940). In the *Bakersfield* opinion District Judge Jertberg uses 'price tampering' and makes no reference to 'price fixing' without hesitation, and apparently without fear of contradiction. *(U. S. v. Bakersfield Associated Plumbing Contractors, Inc.* S.D. Cal.)."

Ultra-Cold Exploration Aided by Most Powerful Continuous Electromagnet

BERKELEY, Calif.—Exploration of matter in the ultra-cold region near absolute zero has been helped by the placing in operation of what the University of California here refers to as the world's most powerful continuously operating electromagnet.

A release from the university refers to this as equipment designed to carry scientists across a new frontier.

LARKIN
ELECTRIC DEFROST
LOW TEMPERATURE
HUMI-TEMP

Here's the unit for the cooling jobs below 32°F. The automatic electric defrost keeps the coil free of ice without overheating—enables the evaporator to function at greater efficiency and lower operating costs. Independent defrosting and refrigeration circuits give dependable, trouble-free service.

Complete Defrost

Sealed tubular heaters are integral parts of the coil. They defrost by *radiation, conduction, and convection*—work fast so the coil can work best.

Fully Adjustable

The defrosting cycle is controlled by a time clock. It can be adjusted for any number of defrosts a day and for any length of time from 2 to 55 minutes.

At the end of the defrost cycle, an adjustable delay period allows the compressor to start before the fans to prevent a blast of warm moist air from entering the refrigerated area.

Investigate the many advantages of the LARKIN Electric Defrost Low Temperature Humi-Temp.

For complete data, see your wholesaler or write for bulletin number 1055.

REASONS WHY YOU'LL BE GLAD YOU BOUGHT IT

- Patented Larkin Cross-Fin Coil—aluminum fins and staggered tubing.
- Heating elements easily removed and installed through side access panel.
- Drain pan has conductive rubber electrical heating pad which assures complete drainage.
- Standard permanently lubricated heavy-duty motors designed for low temperature applications—resilient mounting on adjustable slotted base.
- Heat exchanger provided as standard equipment.
- Heavy gauge, die-stamped aluminum case, finished in Larkin Blue.

BASIC RATINGS

Model	Capacity Btu/hr @ 10° TD F	Total Surface Area	Cfm	DEFROST DATA Coil Heater Watts	DEFROST DATA Drain Heater Watts
ELT-26	2600	69	800	600	155
ELT-32	3200	79	1000	900	155
ELT-42	4200	98	1400	1080	230
ELT-52	5200	131	1550	1440	285
ELT-65	6500	150	1700	1920	285
ELT-82	8200	201	2200	1920	285
ELT-104	10400	226	2800	2880	400
ELT-130	13000	301	3200	3840	510
ELT-160	16000	401	4400	3840	510
ELT-240	24000	501	5600	4800	620

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What Can Manufacturers, Distributors Do To Protect Their Dealers from Discounters?

CHICAGO — Tentative answers to three questions that continually plague retailers in their relationships with manufacturers were offered recently by Dr. Charles Hewitt, Jr., Indiana university professor who is currently making a study of appliance dealer and distributor franchises under a grant from the Ford Foundation.

The questions:

I. Can manufacturers or distributors cut off price cutters where no fair trade laws are in effect?

II. Is it legal for manufacturers or distributors to give volume operators preferential discounts or terms far in excess of those given other dealers?

III. Can manufacturers or distributors give dealers protected territories or enforce penalties against infringing dealers?

"These are highly technical questions," Dr. Hewitt asserted, "and the answers may depend on special facts involved in particular situations."

However, he gave the following general answers to dealers attending a bull session sponsored by the National Appliance & Radio-TV Dealers Association.

Action Should Be with Individual Dealers

I. A recent Michigan Law Review opined that it is legally possible for manufacturers or distributors, *acting individually*, to cut off price cutters independent of fair trade exemptions.

Manufacturers or distributors adopting such a policy should notify each dealer individually, never solicit dealer reports on infractions, and never seek a dealer's agreement to maintain prices, Dr. Hewitt advised.

II. "It is my opinion," he affirmed, "that the free enterprise system will not long survive unless arbitrary and discriminatory discount practices in many American industries are discontinued.

"Volume operators are not legally entitled to discriminatory discounts simply because of greater volume.

"In general, extra discounts must be cost justified. In addition, other special allowances or facilities furnished must be made available to competing purchasers on proportionately equal terms.

Servicing Dealer Saves Manufacturer Money

"In showing cost savings to justify a discount, only cost savings to sellers may be shown.

"Federal Trade Commission rulings do not recognize that a dealer with heavy investment in repair facilities is actually saving costs for his manufacturer.

"This dealer should be entitled to a discount at least equal to imputed interest on his essential or specialized investment. It seems unfair that under present cost justification rules that 'chicken wire' operators stand on the same footing as do dealers with substantial permanent investment in facilities."

III. The United States Attorney General's report in 1955 raised doubt as to the legality of territory protection clauses, Dr. Hewitt said.

"However," he added, "the Department of Justice has no objection to service responsibility clauses that would require cross-selling dealers to reimburse infringed dealers for actual costs of free warranty service rendered by the latter dealers. But this cannot be in the form of a penalty."

Dr. Hewitt likened present day appliance franchises to those in the automobile industry between 1910 and 1920.

"One major difference," he noted, "is that nearly all early auto franchises contained terms designed to control bootlegging and cross shipping.

"It can be stated," he continued, "that appliance franchises do not contain terms recognizing dealers and distributors as having substantial equities or property rights arising out of their franchises.

"This concept of dealer equities was the product of 50 years evolution in the auto industry."

Dr. Hewitt opined that the "manufacturers in this (appliance) industry need independent dealers both politically and economically."

At one point in his talk he warned against "planned obsolescence" as a "very short-sighted policy."

Hotpoint Establishes Separate Sales, Distribution Departments

CHICAGO—Hotpoint Co. announced that its sales and distribution department has been dissolved and two departments established to handle all sales and distribution operations of the company.

In making the announcement, William C. Wichman, General Electric vice president and general manager of Hotpoint, said John F. McDaniel, former general manager of the sales and distribution department, has been appointed general manager of a new sales department.

Robert C. Hawley has been appointed general manager of a new distribution department. Prior to his appointment, Hawley was regional manager of the sales and distribution department of General Electric's appliance and television receiver division, Appliance Park, Louisville, Ky.

Wichman said that under the new structure McDaniel's sales department will be responsible for all Hotpoint operations connected with Graybar Electric Co. and independent distributors. Hawley's assignment will include responsibility for all main and branch houses of Hotpoint.

Concurrently with this announcement, Hotpoint confirmed that E. E. Folsom has been named general manager of the company's home laundry department. Folsom has been manager of manufacturing at General Electric's home laundry plant in Louisville. He first joined the company in 1928.

Rubatex Gaskets meet special Kelvinator requirements

Rubatex closed cellular structure gives Kelvinator engineers just what they want . . .

"a non-moisture absorbing material . . . one that has sufficient resiliency to permit a firm, quiet door closure . . . plus a gasket that can be depended upon for a tight effective seal against loss of cold and entry of warm, humid air."

In addition to these important features, Kelvinator engineers also use Rubatex because it is convenient to work with and easy to apply in the assembly process.

Used as freezer door gasketing in '57 line — continued in Kelvinator '58 line

The principal application of RUBATEX in Kelvinator's combination refrigerator-freezer is a continuous gasket completely surrounding the freezer opening, on top, bottom and both sides.

This is a Closed Cellular Rubatex stock (No. G-251-C) especially developed in a light gray to give a fresh look and to blend beautifully with the metal door.

Rubatex Division, Dept. AC-3
Great American Industries, Inc.
Bedford, Virginia

Just fill out and mail for free sample and more information about Rubatex Closed Cellular Rubber Gasketing.

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Company _____

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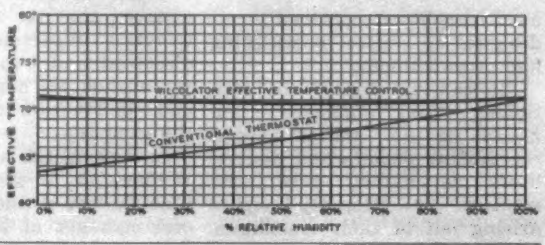
Humidity, Temperature Control Purpose of Wilcolator's Newly Designed Thermostat

ELIZABETH, N. J.—A new-type thermostat, which is said to interpret changes in humidity just as the human body does, makes possible a close control of effective temperature, according to information released by Wilcolator Co. here.

Effective temperature is an arbitrary index which is based upon the feeling of comfort under varying wet and dry-bulb temperatures and different air movement. Thus, an effective temperature of 72° can be obtained at a dry-bulb temperature of 80° and wet bulb of 60°—at 30% relative humidity.

The same effective temperature exists at dry bulb 84° and wet bulb 54°—at 10% humidity. That is, under these two conditions the body would have the same feeling of comfort, it was pointed out.

FIG. 1



Measures Dry-Bulb, Wet-Bulb Temperatures

Wilcolator's Effective Temperature Control makes use of two bulbs—one each to measure wet-bulb and dry-bulb temperature. The dry bulb is located in the return air stream; the wet bulb ideally is located in the same stream.

A wick surrounding the wet bulb cools it by evaporation of the water supplied to the wick. The wet bulb is kept moist at all times.

As the humidity in the ambient zone increases the evaporative cooling decreases and the temperature of the wet bulb increases. Hence, an increase in humidity appears to the thermostat as an increase in temperature in the same manner that it does to the human body, states Wilcolator.

The volume of the wet bulb is so proportioned to the volume of the dry bulb that the thermostat controls along a constant effective temperature line. Fig. 1 shows the way in which effective temperature varies with humidity when only the dry-bulb temperature is held constant.

"It is apparent from this figure that as humidity increases with a conventional thermostat the ambient air increases the sensation of warmth to the human body. Properly applied, the Wilcolator Effective Temperature Control will produce a substantially constant effective temperature over the entire range of relative humidity that may normally be experienced in air conditioning control."

Chart Shows Actual Test Data

Chart was obtained from actual test data in a test cell, explains Patrick W. McCaughey, general sales manager.

Water supplied to wet the wick should be as close to wet-bulb temperature as is practicable. In normal air conditioner application where the water supplied to the wick is obtained from the evaporator condensate, the water will be cool and clean, and should be entirely suitable.

Care must be exercised in the application of this device to make certain that an adequate supply of water will always be available to the wet bulb, since it is apparent that if the wet bulb wick dries out the controlled temperature will immediately shift from Line A to Line B on Fig. 1. This could produce an effective temperature depression of several degrees and might produce an uncomfortable ambient condition, the company warns.

Thermostats can be made with either the wet bulb or dry bulb on the end of the assembly, whichever is more suitable for the application. In addition, it is possible to vary the relative volumes of the dry bulb and wet bulb in the design of the thermostat in order to compensate to some extent for the variables of the system.

Since the air velocity over the wet bulb affects its temperature, in applications where the velocity is low it may be desirable to employ a wet bulb of larger than normal volume.

If more or less than standard compensation is desired for any reason in an application, this can likewise be obtained in the design of the thermostat by variation of the relative volumes of the wet and dry bulbs.

Thermostat Available With Bulbs Far Apart

If the nature of the application is such that it is necessary to mount the wet bulb and dry bulb further than a few inches apart, or in relative positions which cannot be accomplished with closely coupled series-connected bulbs, thermostats can be furnished with bulbs which are separated some distance by the interconnecting capillary, or bulbs can be furnished on separate capillaries.

It is important that the wick supplied with the wet bulb be located so as to cover the entire bulb and a small length of capillary on each end of the bulb.

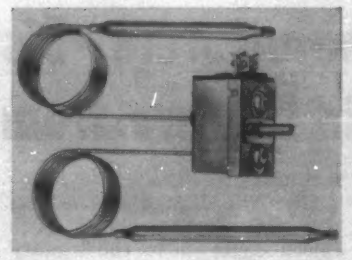


FIG. 2—Effective Temperature Control showing wet and dry-bulb connections.

If the water for the wet bulb is supplied from the evaporative condensate, there will be a false depression in effective temperature when the air conditioners is initially turned on unless the wick is primed with water.

These thermostats are normally designed for correct compensation in the normal summer comfort level zone of temperature. Modified compensation could be supplied if these units are to be applied in a radically different temperature range.

Thermostatic bulbs can be furnished nickel plated if conditions of the application are such that galvanic corrosion might normally be experienced with a plain copper bulb.

To Enter Politics

DALLAS—Bob Hamilton, an official of a local air conditioning firm, announced that he will oppose Denver Seale for the Commissioner District 4 post in the November general election.

Metropolitan N. Y. RSES Meet Sept. 10

NEW YORK CITY—L. Henriques, chairman of education for the Metropolitan New York Chapter, Refrigeration Service Engineers Society, announced that at the group's Sept. 10 meeting, W. W. West of Mueller Brass Co. will discuss and demonstrate copper to copper and copper to aluminum soldering.

West will also demonstrate "Streamline" and air conditioning products, it was stated. In addition, there will be a soldering contest.

The meeting will be held at the Broadway Central hotel, 673 Broadway here, starting at 7:30 p.m.

Northwest Dealers Plan Sept. 30 Profit Clinic

SEATTLE — Appointment of Fred Egge of Ware & Hosey here as general chairman of the Sixth Annual Profit Clinic was announced by Bert Pierce, president of the Northwest Appliance & Television Association.

The all-day meeting will be held Tuesday, Sept. 30 at the New Washington hotel in Seattle.

Further information may be obtained from Bob Thompson, secretary, Northwest Appliance & Television Association, 512 First Ave. North, Seattle 9.

NOW increase profitable sales with a complete line of VILTER ammonia refrigeration equipment

Substantial sales are now possible in numerous areas for distributors prepared to offer a complete line of ammonia refrigeration equipment. With the versatile Vilter ammonia line, you can handle practically any commercial and industrial refrigeration application in your area on an attractive competitive basis.

The Vilter ammonia line consists of VMC compressors, 15-250 ton capacities, booster compressors, plus a wide range of associated refrigeration equipment—evaporative condensers, blast freezers, brine coolers, ice machines, shell and tube condensers, and cooling coils among others.

Vilter distributors enjoy many sales advantages:

★ Outstanding line of refrigeration equipment—known for its dependable service, long life, efficient, economical performance.
★ Equipment backed by ninety-one years of intense activity in engineering and research.
★ Strong home office support. Engineering application counsel is always available.
★ Wide acceptance of Vilter equipment in all industries using refrigeration.
★ The Vilter line is advertised widely in the trade press.

It will pay you to consider the Vilter line of ammonia refrigeration equipment for your area. High sales potential. Good profits. For distributors interested in the entire Vilter line there is a full Freon compressor line plus air conditioning equipment. Don't wait! Get acquainted now.

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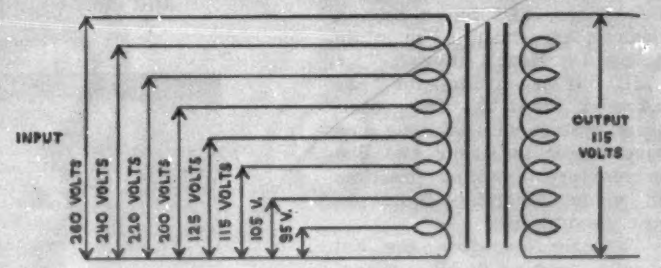
WHAT YOU SHOULD KNOW ABOUT TAPPED WINDING TRANSFORMERS

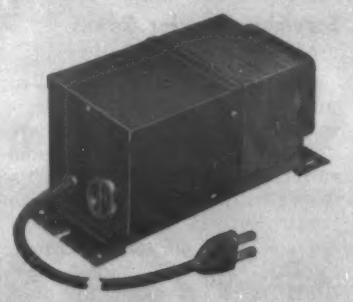


• Tapped winding transformers, solve both sales and installation problems, inexpensively. For example; where an air conditioner, refrigerator, or other appliance, powered by a 115 volt motor is to be installed in a location where only 230 volt power circuit is available, a tapped winding transformer plugs into the power circuit and supplies 115 volt service to the appliance.

Or, as another example; where the appliance installation is made in a location where supply voltage is *below* the normal required for good motor performance (105 volts or lower) then the input line connected to the proper taps can improve the low voltage condition and provide 115 volt service.

As shown in the diagram this transformer is designed with taps for 260/240/220/200/125/115/105/95 volts primary connection and when connected to the proper primary taps will provide a 115 volt source of supply.

Available in ratings of 350, 550 and 750 VA. Other models provide 230 volt output from 208 volt available circuits. Write for Bulletin TW-320.



ACME ELECTRIC CORPORATION
929 WATER STREET CUBA, NEW YORK

Acme Electric TRANSFORMERS

Refrigeration Problems
And Their Solution
(As Written by Paul Reed)

The late Paul Reed, one of the refrigeration industry's most respected writers and teachers, wrote a column on "Refrigeration Problems and Their Solution" which was published regularly in AIR CONDITIONING & REFRIGERATION NEWS for more than 15 years.

Readers throughout the years have hailed this written material as some of the most practical and helpful that has ever been published. Fortunately, the author had an opportunity to revise some of this material and the NEWS is currently re-publishing it.

Bubbles In the Sight Glass

QUESTION:

I am servicing a 10-hp. Refrigerant-12 air conditioning system with the machine in the basement and the blower coil on the second floor. There is only one expansion valve in the coil. The liquid line is ¾-in. copper tubing and the suction line is 2⅛-in. hard copper.

I have a sight glass in the liquid line just ahead of the valve and I get bubbles all the time the machine is running.

The job seems to work all right, but I can't get rid of the bubbles. I tried adding 20 lbs. of refrigerant and the bubbles went away, but then the head pressure went pretty high, so I took it out.

The only trouble I have had was, that I had to change the expansion valve twice. I found a pin broken inside the valve both times. I have been told that the bubbles caused the valves to go bad. Could this be? How can I get rid of those bubbles?

ANSWER:

You have two conditions that are causing the bubbles in the sight glass:

1. Your liquid line is too small; it should be not less than 1⅛-in. o.d. tubing. For short runs on the same floor, you might get by with a ⅞-in. soft copper tubing, although even there, a ⅞-in. hard copper line would be better, but even ⅞ in. is too small for a liquid line rising two stories. The ¾-in. line causes a considerable pressure drop from the receiver to the expansion valve, and this pressure drop is a cause of part of the bubbles.

2. At 107°, liquid Refrigerant-12 weighs approximately 77 lbs. per cu. ft., so in every foot rise of the liquid line, the refrigerant weighs about ½ p.s.i. If your liquid line rises say 30 ft., the 30-ft. column of liquid is "using up" about 15 p.s.i. of the head pressure just to support the 30 ft. of liquid Refrigerant-12, so the pressure at the top of the column of liquid is 15 p.s.i. less than at the bottom. Saying it another way, the weight of the 30 ft. of liquid causes a pressure drop of 15 p.s.i. from the receiver to the sight glass.

You will have this 15-lb. pressure drop even if you had a large liquid line, so large in fact that it had no restricting effect. But you have too small a liquid line also, so it probably adds at least another 5 p.s.i. pressure drop or more, due to its restrictive effect. In all then, you probably have at least a 20 p.s.i. pressure drop.

If the head pressure is say, 125 p.s.i.g., then the pressure in the receiver and at the bottom of the liquid line is therefore 125 p.s.i.g. This corresponds to a condensing temperature of about 105°.

At the top, 30 ft. above, the pressure is 95 p.s.i.g. which corresponds to about 87°, so the liquid must "boil," and gas bubbles form, in order for the liquid to cool itself down to 87° to correspond to its lower pressure of 95 p.s.i.g. up on the second floor.

As a rule, excessive pressure drop in the liquid line is less serious than in the suction line. Its most serious effect is reduction of capacity of the expansion valve.

The valve will pass less liquid for two reasons: (1) some of the capacity of the valve is taken up passing the gas, that is, the "liquid" is not a solid liquid, but is partly gas bubbles. (2) The difference in pressure across the valve is less since the pressure of the liquid at the valve is lower because of the excessive pressure drop.

To offset this loss of capacity, it may be necessary to use a larger valve. In your case, it is surprising that you are not having any trouble, for you must have a rather large loss of capacity due to excessive pressure drop. It may be that your expansion valve was oversize to start with.

If the valve lacks capacity, the evaporator may be starved and not fully active. This will cause a lower suction pressure and a low capacity of the entire system. The air from the coil may not be as cool as it should be. Assuming that yours is a direct expansion coil, the suction pressure should be not less than about 35 (and preferably 37 to 40) p.s.i.g.

The broken valves were probably caused by the chattering and vibration set up by the bubble of gas in the valve. Some types of valves are particularly affected that way; other types are very little affected.

If your job is working all right, if the evaporator is fully active, and satisfactory results are being obtained, do not worry about the bubbles and do not add refrigerant to raise the head pressure to get rid of the bubbles.

Although you probably do not need it on this job, there is a way to purge the "flash gas," the bubbles in the liquid line, to the suction line. This is described and illustrated in Chapter 11 of Volume I of "Refrigeration Problems" (written by Mr. Reed and available from Business News Publishing Co.).

Aeroquip Opens New Plant In Dallas

JACKSON, Mich. — Installation of new plant facilities in Dallas has been announced by Aeroquip Corp. here.

Aeroquip formerly had a warehouse in the Dallas area for servicing industrial customers. The new plant will serve both the industrial and aircraft markets.

Including offices, the plant has 10,000 sq. ft. of floor space. Complete facilities will be available for assembly, proof test, and inspection of hose assemblies.

Air Force inspection is also available for hose assemblies supplied on military contracts.

Manager of the Dallas plant is Clyde Stratton, according to the announcement.

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WATER-COOLED
CONDENSERS ⅛ TON to 15 TONS
and
LIQUID RECEIVERS
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EVERY REQUIREMENT
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TECHNICAL CENTER

By Frank J. Versagi, Technical Editor

Basic Rules for Refrigerant Piping (2)

Here are specific recommendations based on the general principles presented last week. Information is based on talk given by Fred K. Ladewig, manager, Kansas City office, Trane Co.

Fig. 1—The suction line without a pump-down cycle should loop down, then up to an inverted loop to the top of the evaporator. This type of connection will prevent liquid refrigerant from spilling over to the compressor during the off cycle. The suction line should be free draining when pump down is used.

Fig. 2—When there are two or more evaporators above the compressor, suction line connections are similar to those shown in Fig. 1, with the addition of a double elbow loop out of the lower evaporator when pump down is used. The purpose of the loop is to prevent erratic operation of the expansion valve on the lower evaporator because of reactions from the upper evaporator.

Fig. 3—If the evaporator is located below the condenser, or if the suction line must rise above the evaporator to provide head clearance, the connections should be made as shown above. With capacity modulation, the double riser becomes a necessity. At part load, the gas velocity in the larger riser will not be sufficient to carry oil up the line. As a result, the oil drops back down to the risers to collect in the trap at its base.

When sufficient oil has collected to seal the trap, all of the gas flows up the smaller riser at a velocity which will insure return of the oil. When the capacity of the system again increases sufficiently to break the oil seal in the trap, both risers again convey refrigerant and oil. Caution: Trap must be properly made to prevent excess oil collection on reduced capacity.

Fig. 4—When evaporators are located above and below the suction main, those evaporators above the main are connected in the conventional manner. Evaporators located below the main are connected with the end of the evaporator tied directly into the main. However, all subsequent evaporators below the main should be arranged for inverted, or top, entry.

If pump down is employed, the inverted loop can be omitted on upper evaporators. If the

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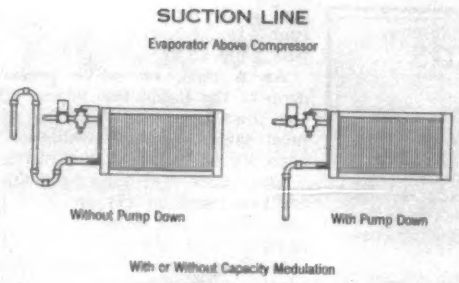

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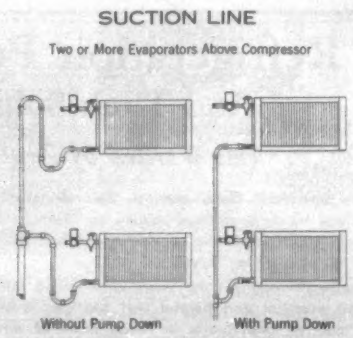

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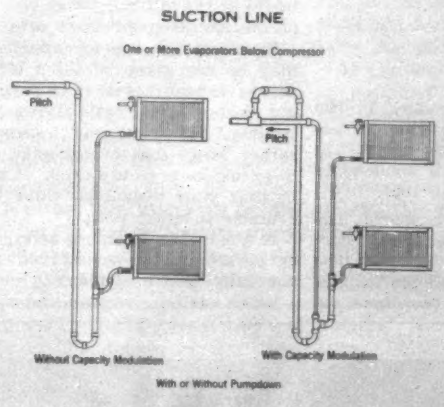

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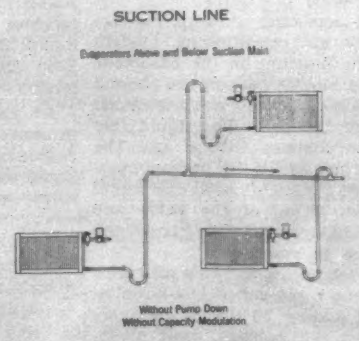

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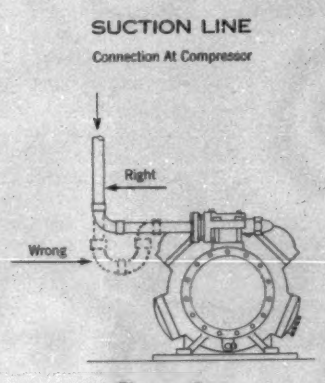

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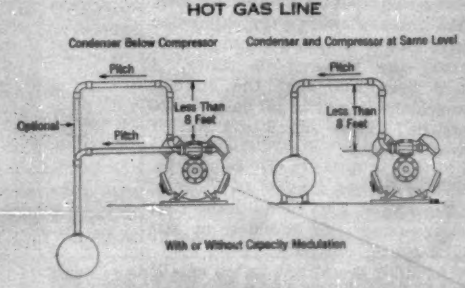

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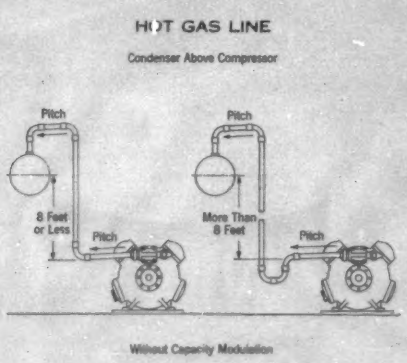

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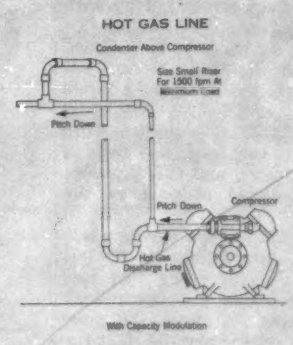

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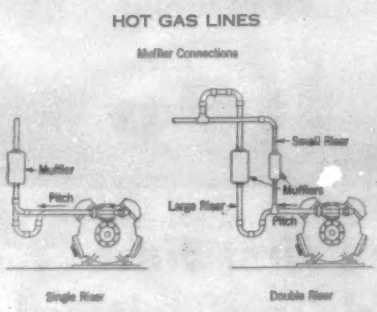

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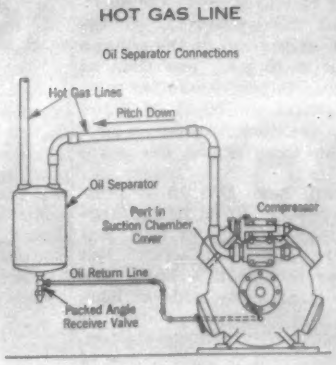

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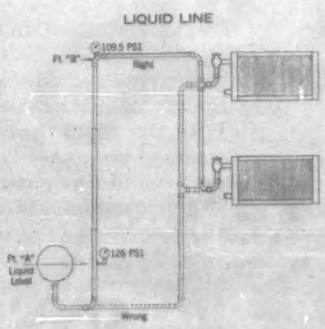

Figure 11

NEW!

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CAPACITY: The Little Giant Drier can be used on all hermetic and open-type units up to ¾ hp with F-12 and ⅓ hp with F-22 refrigerants.

CONSTRUCTION: The KMP Little Giant Drier consists of a ¾" O.D. spun copper shell with ¼" copper end tubes silver brazed in place. The inlet is made to fit either ¼" O.D. or 5/16" I.D. with outlet spun down to accommodate capillary. Driers are completely dehydrated and the ends fused and sealed to insure dryness. KMP's undercutting feature permits tubes to be quickly and easily snapped off, as well as cut off, swedged, flared or bent to take care of all field applications from capillary sweat connections to ¼" flare. Rated in accordance with AR1 Standard No. 710.

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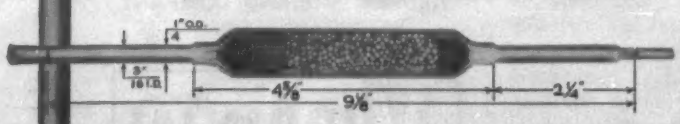

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(Concluded from preceding page)

compressor has capacity modulation, double risers must be used on all lower evaporators when the load on the evaporator may vary. In all cases, the short loop at the outlet of each lower evaporator is important.

Fig. 5—The suction line should be connected directly to the compressor as shown. Never install an oil trap (shown dotted) near the compressor as such a trap could cause oil to enter the compressor in slugs.

HIGH SIDE PIPING

Fig. 6—The hot gas lines to a condenser located below the compressor may be run directly from the compressor discharge service valve to the condenser as illustrated. The optional, and perhaps most common, method is to rise from the compressor discharge, run horizontal to a point directly above the condenser inlet, and then drop to the condenser. This method is used to provide headroom for access to the equipment and greater flexibility in piping. The connections to a condenser at the same level as the compressor are similar. In all cases horizontal lines should be pitched down in the direction of flow.

Fig. 7—As indicated, piping connections for condensers located above the compressor without capacity modulation are fairly simple. If the condenser is more than 8 ft. above the compressor, an oil trap should be installed at the base of the riser. Long vertical risers are not recommended; but if they must be used, additional oil traps or "lift loops" should be installed at 20-ft. intervals.

Fig. 8—Condensers located more than 8 ft. above a compressor with capacity modulation should be piped with a double riser connection as illustrated.

Fig. 9—Mufflers can be used effectively to minimize the noise caused by pulsations in the discharge gas from reciprocating compressors. Unless the muffler is specifically designed for installation in a horizontal line, it should be installed in a vertical line as close to the compressor as possible. Muffler connections for both single and double risers are shown.

Fig. 10—Typical connections for an oil separator are shown. If there is any doubt about the return of oil to the compressor, it may be wise to use a separator. With an oil separator, the basic rules of good piping design still apply. Separators occupy a logical position in many applications, but they should not be considered cure-alls for the oil return problem inherent in refrigeration systems.

When a separator is necessary, it should be installed as close to the compressor as possible. Because oil separators act as mufflers in dampening hot gas pulsations, mufflers can be omitted when separators are used.

Fig. 11—Since oil does not ordinarily separate from liquid refrigerant, liquid line design concerns itself chiefly with the prevention of flashing before liquid reaches the expansion valve.

The pressure of the liquid at the bottom of a riser is greater than the pressure at the top simply because of the weight of the liquid. If the refrigerant at the bottom happens to be at a balance point between liquid and gas, it will flash into gas if the pressure upon it is decreased. Therefore, before the refrigerant starts up the riser, it must be sub-cooled below the condensing temperature corresponding to the pressure at the top of the riser.

At 109.5 p.s.i., the refrigerant will condense at 96° F. Therefore, the liquid must be cooled below 96° F. before it starts up the riser. In actual design work, the pressure drop due to friction must be added to the static pressure drop when calculating the amount of sub-cooling required. Sub-cooling of 10° F. is usually sufficient for elevations up to 25 ft.

Several different methods may be used to sub-cool the liquid. Liquid-to-suction heat exchangers, available as manufactured products, provide various degrees of sub-cooling. If a single unit is inadequate, two or more heat exchangers may be arranged in parallel.

The suction and liquid lines to parallel exchangers should be connected to provide equal flow and equal pressure drop through the exchangers. Suction connections should be at the bottom to allow free draining of oil.

The preferred method of piping a liquid line is shown. The full vertical rise should be taken at the condenser or receiver, and the expansion valves should be fed from above. Downward flow to the expansion valve will assure even distribution of sub-cooled liquid to each valve. Upward flow will result in the upper valve receiving most of the flash gas which might be present in the liquid line.

WHAT . . WHEN . . WHERE

National Institute of Locker & Freezer Provisioners Convention and Exhibit
Sept. 21-24, Hotel Sherman, Chicago.

Midwest Association, Refrigeration Engineers Society Educational Conference
Oct. 9-11, Sheraton-Jefferson hotel, St. Louis.

Refrigeration & Air Conditioning Contractors Association Convention
Oct. 12-15, Broadmoor hotel, Colorado Springs, Colo.

Air-Conditioning & Refrigeration Wholesalers Meeting
Oct. 22-24, Sheraton-Palace, San Francisco.

National Electrical Manufacturers Association Meeting
Nov. 10-14, Traymore hotel, Atlantic City, N. J.

National Association of Practical Refrigerating Engineers Meeting
Nov. 11-13, Kenilworth hotel, Miami Beach, Fla.

Better Heating-Cooling Council Meeting
Nov. 17-19, New York City.

National Commercial Refrigerator Sales Association Convention
Nov. 17-19, Golden Gate hotel, Miami Beach, Fla.

American Society of Refrigerating Engineers Meeting
Dec. 1-3, Roosevelt hotel, New Orleans.

Babcock & Wilcox Gets Hospital Boiler Contract

NEW YORK CITY—Babcock & Wilcox Co. reported that it has received a contract from Watt Plumbing, Heating & Supply Co. of Tulsa, Okla. to manufacture and install two boilers at the new $7.5-million St. Francis hospital in Tulsa.

The hospital will have a capacity of 295 beds when it opens in the fall of 1959. It will be five stories high and "Y" shaped in structure, according to the announcement.

Steam generated by the two boilers will be utilized in the hospital's heating and air conditioning systems to be installed by the Watt company. With a design pressure of 250 p.s.i.g., each unit will have a saturated steam flow of 16,000 lbs. per hour at an operating pressure of 135 p.s.i.g.

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Now comes a revolutionary development in superheat testing. The kit illustrated here gives you the easier, faster, and above all the *more accurate* superheat readings you need for that all-important adjusting and setting of the expansion valve.

All the difficulties of testing with glass tube thermometers—positioning, reading, costly breakage—are wiped out. The small bulbs of these distant reading *dial* thermometers are easily attached exactly where they should be. The distant reading feature permits placing the dials where they can be readily seen and compared. The widely spaced *one*-degree markings in the testing zone assure far more accurate reading than is possible with the closely-spaced markings of glass tube thermometers.

Note the many features described opposite—particularly the method of insulating against ambient temperature . . . which assures more accurate readings . . . better results.

At their moderate price you can own these long-lived "Super-heat" Thermometers at a fraction of the cost of using the breakable, short-lived kind!

Write for facts or See Your Wholesaler

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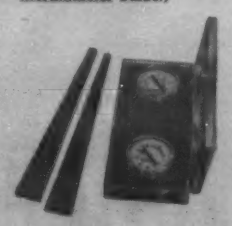
Marsh Instrument & Valve Co. (Canada) Ltd., 8407 103rd Street, Edmonton Alberta • Export Dept., 3501 Howard St., Skokie, Ill.

MARSH Refrigeration Instruments

The "Super-heat" testing kit contains two identical, 2-inch dial-size thermometers (one for evaporator inlet and one for outlet) in attractive, highly polished brass cases. Dials are graduated —40° to +65° F. Widely spaced *one*-degree calibrations in testing zone are *guaranteed* accurate within *one* marking plus or minus. (Glass tube thermometers have crowded markings.) Each thermometer has a 12-inch capillary tubing. Bulbs are small for use in tight quarters. Kit contains two non-absorbent insulating wrappers for easy attachment of bulbs to evaporator tubing . . . also to insulate bulbs from ambient temperature. (Field studies have shown that for the highly accurate readings essential to superheat testing, ambient temperature must be insulated from thermometer bulbs.)



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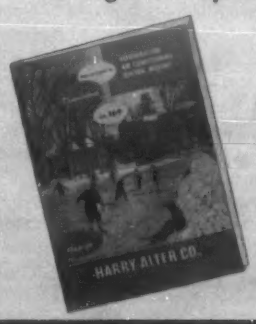

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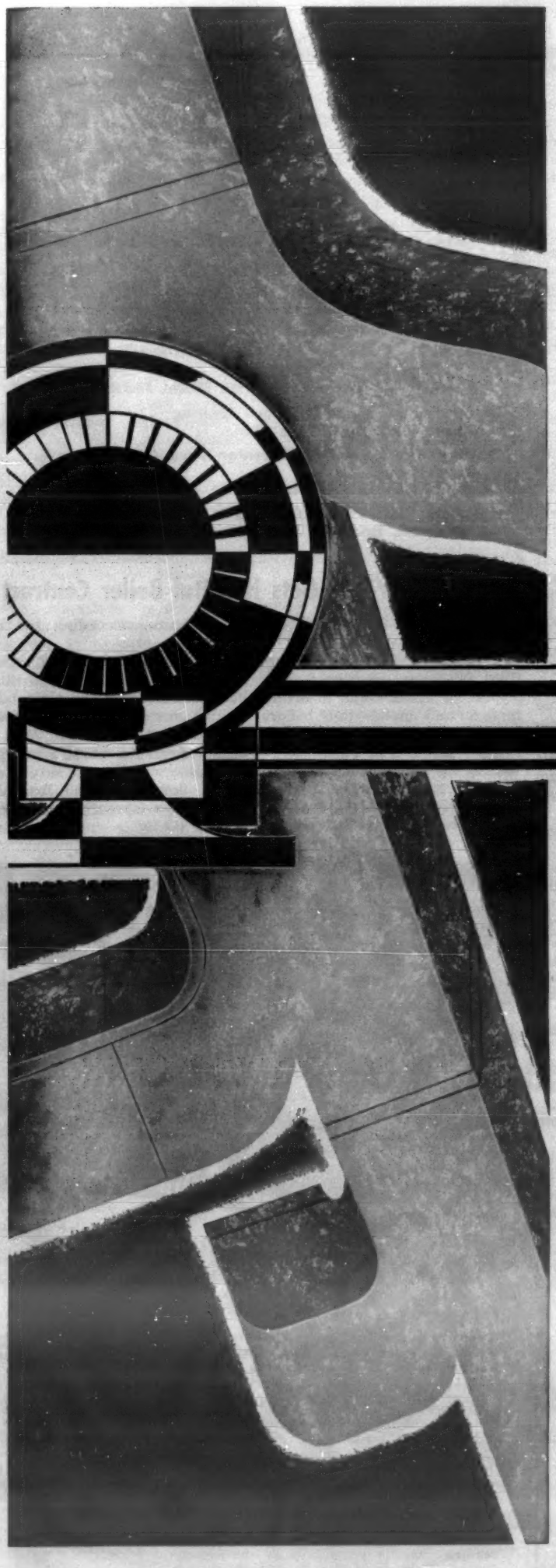

Heating in a cooling publication?

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Heating people are in cooling—cooling people are in heating—and the NEWS is their *modern* source of up-to-date information on the whole field. The NEWS is now the "newspaper of the industry" for heating as well as cooling.

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DETROIT, 450 W. FORT ST., WOODWARD 2-0934, JOE SULLIVAN.

L. C. McKESSON, Ansul vice president, wishes Mrs. Elmer Wiedwald, Cleveland, success before she takes-off for ninth annual All Women's International Air Race. Flying a Cessna 172 plane, sponsored by Ansul Chemical Co., Marinette, Wis., Mrs. Wiedwald averaged 128 m.p.h. over the 1,313-mile route between Welland, Ont., Can. and Grand Bahama, B.W.I., to capture third place. Her husband, Elmer, owns and operates Cleveland Hermetic Supply Co., Inc., an Ansul wholesaler in that area.

Cooling Off--

(Concluded from Page 1, Col. 3)

soft drinks for all, and rewarded lucky coupon holders with prizes of from $1 to $20 if they could match numbers with lists posted in participating stores.

Result: More air conditioner sales than in the preceding three weeks and a decision to hold similar events twice a year in the future.

* * *

Highest outlets for conditioned air in the United States is the boast of the recently modernized Riverside church in New York City. They are 100 ft. above the floor.

Unusual height resulted from efforts to save the church a sizeable expense by utilizing the ducts of a natural air circulation system installed about 1928. Cooling system provides an entering air temperature difference range of 17.5° at 50,000 c.f.m. with 2.3 air changes per hour.

* * * *

For [illegible], a refrigerator serviceman silenced the banging noise that had come from a Milwaukee housewife's refrigerator for several months. He removed a sign reading "God Bless Our Mortgaged Home" that fell behind the motor.

* * *

It took quite a stretch of the imagination, but the New Jersey Medical Society has solemnly warned that the air conditioned home may produce a flabby, tired child.

Taking some of the heat off the TV set as scape-goat, the society pontificated: "Excessive attempts to avoid heat may produce a flabby, pale, tired child who has gained excessive weight because he stayed in an air conditioned house and has indulged in between-meal snacks that have spoiled his appetite for well-balanced meals."

* * * *

It takes only one operating engineer per shift to run the world's largest artificial ice making plant at Ogden, Utah. The automatic plant will produce 730 tons of ice in 5,000 blocks per day.

Refrigeration is provided by four turbo brine cooling systems manufactured and installed by York Corp. The $1 million Pacific Fruit Express Co. plant was built by Associated Refrigeration Engineering Co. of Los Angeles.

* * *

Since 1957—just a year ago—close to 200,000 room air conditioners have been sold in New York City, a Carrier Corp. survey revealed. More than 5,000 hotel rooms have been cooled and more than 7,000 stores and 2,500 homes have installed central air conditioning.

The courthouse in Carthage, N. C. needs air conditioning, Judge W. H. S. Burgwyn says, and the Moore County Grand Jury agrees with him.

Judge Burgwyn, charging the grand jury as the current term of criminal court opened, voiced his opinion about the air conditioning matter in no uncertain terms.

He threatened to subpoena all the county commissioners for jury service so they could "suffer the heat and noise and the gnats along with the rest of us." He later relented, however, while still expressing strongly his views that all North Carolina courthouses ought to be air conditioned.

The grand jury reported in part, "Due to the extreme discomfort afforded by our warm summer weather and the severe noise, as well as other distractions caused by the courthouse being exposed to an adjacent traffic circle, we the Grand Jury recommend that the Board of County Commissioners at the earliest possible date have its offices and auditorium in the County Court House air conditioned."

It will be recalled that the previous grand jury recommended the same thing.

Code Changes--

(Concluded from Page 1, Col. 5)

loads may be omitted whenever both loads cannot be served simultaneously—as in the case of electrical heating and air conditioning loads.

The alternate formula will result in substantially raising the allowable demand which a 100-amp service can handle.

It is based on a study of more than 1,000 homes where specific records of actual-demands were kept over an extended period of time.

Another proposal requires that kitchen, laundry room, pantry, dining room, and breakfast rooms have a minimum of two 20-amp branch receptacle circuits.

All proposed changes in the electrical code are subject to industry discussion until Dec. 1, 1958.

Closed Shop--

(Concluded from Page 1, Col. 5)

comply with the NLRB ruling on a national pattern.

To assist individual contractors, NAPC recently circulated to its members an employment policy statement prepared for the use of one contractor.

It reads:

"When vacancies exist, any applicant for a job will be considered on the basis of his previous employment record with us. If no previous employment, then men will be hired on the basis of qualification for the job. The company reserves the right to determine competency.

"This company recruits needed employes in many ways, through word of mouth, advertising, and upon referral from a union. However, no preference is given to applicants on the basis of his referral or because he is or is not a member of a union.

"However, persons hired will be expected to conform to our agreement with the union. This means that a non-union employe shall become a union member within .... days from the date of hire, and shall remain a member to the extent required by our union agreements and permitted by state and Federal law."

NAPC Counsel George P. Lamb, who drew up the statement, suggested that the statement be posted prominently in the contractor's place of business or copies printed to hand to individuals applying for employment.

He further suggested that contractors operating an open shop or non-union shop could use the statement by deleting the last sentence pertaining to union security provisions.

Carrier Sales--

(Concluded from Page 1, Col. 5)

profit, $6,030,000 or $2.63 per common share. During the same period a year earlier orders booked amounted to $210,376,000 and net sales $203,040,000. The net profit was $6,690,000 or $2.99 per share of common stock.

The corporation reported a backlog of unfilled orders as of July 13, 1958 in the amount of $98,813,000. The comparable 1957 total was $112,618,000.

Cloud Wampler, board chairman, said earnings for fiscal 1958 "are now expected to be approximately the same as last year in spite of lower sales volume and the continuing cost-price squeeze."

He also stated: "As for the booking of new orders, the outlook appears reasonably favorable.

Kelvinator To Concentrate Manufacturing Operations at Grand Rapids Factory

DETROIT — Kelvinator Div. of American Motors Corp. announced plans for the concentration of all of its basic manufacturing at its main plant at Grand Rapids, Mich. and the ultimate expansion of its assembly facilities to regional plants strategically located throughout the country.

B. A. Chapman, executive vice president, said the main appliance plant at Grand Rapids will become the "hub" of future Kelvinator operations.

"Concentration of all household appliance manufacturing in Grand Rapids will permit us to take maximum advantage of such factors as shipping costs, inventory control, and prompt service to dealers and customers," Chapman said.

In addition to assembly at Grand Rapids, components produced there ultimately will be shipped to regional plants for final assembly to meet regional dealer requirements, as is done in the automobile industry.

Basic laundry equipment manufacturing, now performed at the Altorfer Bros. Co. subsidiary plant at Peoria, Ill., and refrigerator compressor manufacture, now performed at the Detroit Plymouth Rd. plant, will be concentrated at Grand Rapids. The moves will be completed by the end of this year.

Tax Law Revisions-

(Concluded from Page 1, Col. 2)

able years ending after Dec. 31, 1957.

It increases to $100,000 the amount of earnings closely held firms can accumulate without special penalty taxes.

In corporations with 10 or fewer stockholders, holders can, by unanimous vote, agree to be taxed as partners, taking credit on their individual tax returns for the company's gains and losses.

Where the value of a closely held business is more than 35% of the gross estate or more than half of the taxable estate, the estate tax on that business can be paid over a 10-year period at 4% interest. Previously the estate tax had to be paid immediately.

SBA To License Firms To Make Loans by Jan. 1

WASHINGTON, D. C. — The Congress-approved program to aid small businesses get equity capital and long term loans should be in operation by Jan. 1.

On or before that date, the Small Business Administration plans to be issuing licenses to investment companies, who will make the actual loans, according to Wendell B. Barnes, SBA administrator.

Detroit Warm Air Group To Hear 'How To Stay In Business'

DETROIT—Harold E. Jalass, vice president of Cribben & Sexton Co., Chicago, will tell members of the Detroit Warm Air Heating Association "How To Stay In Business" at the association's meeting Sept. 11.

The meeting will be held at 8 p.m. in the Shelby room of the Fort Shelby hotel.

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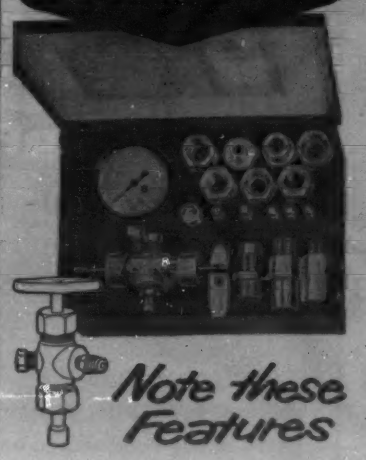

Note these Features

★ Eliminates the need for a separate valve for each hermetic unit serviced. Master valve is furnished with adaptors and stem extensions to service specific units.

★ Stainless steel stem provides long service life—*at no added cost.*

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★ Many other time and cost saving features.

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Ask for No. 4321 or 4321G (with gauge).

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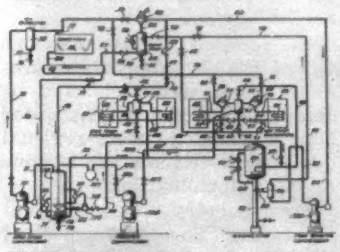
PATENTS

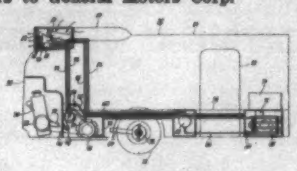
Week of July 8

2,841,962. RETURN APPARATUS FOR A TWO-STAGE REFRIGERATION SYSTEM. William V. Richards, Glenview, Ill., assignor to H. A. Phillips, doing business as H. A. Phillips & Co., Chicago, Ill., by Wayland Phillips, conservator of his estate.



9. In a refrigerating system, in combination, a cooling coil providing an evaporator and having a liquid refrigerant inlet line and a vaporized refrigerant outlet line, a surge drum in connected relation with the inlet and outlet line respectively, a high pressure refrigerant feed line for delivering liquid refrigerant to the surge drum, a suction return line for the vaporized refrigerant. . . .

2,841,963. REFRIGERATING APPARATUS. Hans O. Schjolin and Everett W. Allen, Birmingham, Mich., assignors to General Motors Corp.



1. In a passenger vehicle having a passenger compartment provided with a floor and a roof, a driving means for said vehicle located adjacent the floor, and air conditioning means for said passenger compartment including a compressor driven by and operable coincidentally to the operation of said driving means and an air cooled condenser located adjacent the roof and an evaporating means located adjacent the passenger compartment. . . .

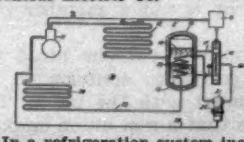
2,841,964. PORTABLE AIR COOLER. Hubert D. Anderson, Coward, S. C.

A self-contained portable air cooler, comprising in combination a substantially rectangular housing having an open front and back and including top and bottom walls and a pair of side walls, a horizontal partition provided in said housing adjacent the bottom wall thereof and affording a battery compartment in the bottom portion of the housing. . . .

Editor's Note: Patents described here have been selected from the "Official Gazette" of the United States Patent Office. They offer only a brief summary of each invention. In some instances only the first part of the digest is presented

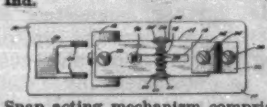
Printed copies of patents, reissued patents, and patent designs may be secured from the Patent Office; patents and reissues are 25¢ each, while designs are furnished at 10¢ each. Address orders to: Commissioner of Patents, Washington 25, D.C.

2,841,965. DUAL CAPACITY REFRIGERATION. Theodore L. Etherington, Ballston Lake, N. Y., assignor to General Electric Co.



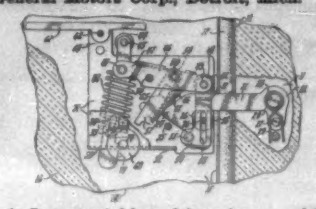
1. In a refrigeration system including a receiver and an evaporator, a compressor and a condenser, a pair of refrigerants in said receiver, said refrigerants being at a first temperature range substantially immiscible and at a second temperature range substantially, mutually soluble, means for circulating a solution of said refrigerants through said system at said second temperature range, means for cooling the refrigerants in the receiver to vary the solubility thereof as a function of evaportaor temperature, and means to selectively circulate one of said refrigerants when said first range of temperature is attained.

2,841,999. SNAP ACTING MECHANISM. Earnest P. Swanson, Bristol, Ind., assignor to Penn Controls, Inc., Goshen, Ind.



1. Snap acting mechanism comprising a leaf spring blade provided with a longitudinal slot terminating short of the ends thereof, means for anchoring one end of said blade whereby the other end may serve as an actuating means, a pair of elements pivotally engaging the side edges of said blade in the vicinity of the central portion of said slot, resilient means biasing said elements toward each other. . . .

2,842,075. DOOR FASTENER. Francis I. Rataiczak, Dayton, Ohio, assignor to General Motors Corp., Detroit, Mich.



1. In a portable refrigerator, a cabinet structure having a compartment therein provided with an access opening and a door structure adapted to close said opening, a refrigerating system associated with said refrigerator including an electrically operated refrigerant translating unit mounted therein, an electric circuit detachably connected to a source of electric current and leading therefrom to said unit. . . .

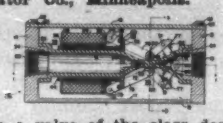
2,842,317. THERMAL VALVE WITH SAFETY LOCK. Charles W. Wood, Lebanon, Ohio, assignor to Standard-Thomson Corp., Dayton, Ohio.

1. In a fluid control valve comprising an annular valve seat member provided with an annular flange extending therefrom, a plurality of support members attached to the valve seat member and extending on either side therefrom, a movable valve member engageable with the valve seat member, a casing member having rigid end walls attached to the movable valve member. . . .

2,842,318. VALVE. Richard Lyons Campbell, Birmingham, Mich., assignor, by mesne assignments, to American Radiator & Standard Sanitary Corp., New York.

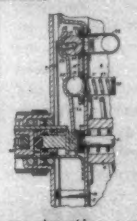
5. A valve comprising an apertured support wall; a coil spring engaging said support wall, the spaces between the spring convolutions constituting openable and closable valve ports; a temperature responsive power element within the spring and including a cup portion extending from the end of the spring remote from support wall. . . .

2,842,331. PINCH-OFF VALVE. Donald G. Anderson, Minneapolis, Minn., assignor to Minneapolis-Honeywell Regulator Co., Minneapolis.



1. In a valve of the class described, a valve housing having an inlet and outlet joined by a pliable tube, a solenoid including a solenoid plunger slidably mounted within said solenoid and both supported concentrically with said tube, two linkage operators joined to said plunger at diametrically opposite points and extending parallel with said tube. . . .

2,842,332. VALVE CONSTRUCTION. Owen M. Whitten, Detroit, Mich., assignor to Kelsey, Hayes Co., a corporation of Delaware.



1. A valve construction comprising an annular seat, a valve having a partly spherical surface at one side thereof adapted to roll into and out of sealing engagement with said annular seat while partially entering the latter, said valve having an elongated recess in the side thereof opposite said partly spherical surface. . . .

MANUFACTURERS:

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Over 2,000 manufacturers of air conditioning, refrigeration and heating equipment and supplies will be listed in the "one source buying guide of the industry." Manufacturers are listed alphabetically and geographically. In addition your name will appear under each product that you manufacture.

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Excellent opportunity with a leader in its field. Must have experience with food store refrigeration equipment and be willing to travel. To cover the Eastern states—New Jersey, Pennsylvania, Maryland, Virginia, North Carolina, Connecticut. Full company benefits, including retirement plan. Write James A. Brennan, C. V. Hill & Co., Inc., Trenton, N. J. stating experience, references and salary expected. All replies held confidential.

CLASSIFIED ADVERTISING

RATES for "Positions Wanted" $7.50 per insertion. Limit 50 words. 15¢ per word over 50.

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ADVERTISEMENTS set in usual classified style. Box addresses count as five words, other address by actual word count. Please send payment with order.

POSITIONS WANTED

SOUTHERN CALIFORNIA manufacturer's representative now calling on mechanical engineers, heating, air conditioning, and refrigeration contractors and wholesalers desires additional exclusive lines in commercial and industrial equipment. We are young and aggressive with a good following. Send catalogs and sales policy to BOX A6099, Air Conditioning & Refrigeration News.

REFRIGERATION SERVICE engineer —Over 10 years in commercial refrigeration installation and service. Equipment sizes ½ h.p. to include 75 h.p. Member R.S.E.S. Presently employed as service manager for wholesale-retail food chain. Desire relocate Southwest. Excellent references. Available within 60 days. Write BOX A6101, Air Conditioning & Refrigeration News.

POSITIONS AVAILABLE

PRODUCTS SPECIALISTS needed by leading air conditioning manufacturer. Expanding position covering all areas related to product development, application and salability in liaison between Sales and other company divisions on packaged liquid chillers, packaged air conditioners and air handlers. Excellent opportunity with growing company. Address replies with complete summary of personal history and work experience to Mr. John P. Campbell, ACME INDUSTRIES, INC., 600 N. Mechanic Street, Jackson, Michigan.

FACTORY REPRESENTATIVES — A leading manufacturer of beverage cooling equipment has openings in choice territories, selling bottle coolers, icemaker combinations, dairy coolers, beer coolers, etc. State other line presently selling—must not conflict. State area covered. Write—BEVERAGE-AIRE COMPANY, P. O. Box 4044, Spartanburg, South Carolina.

HAVE OPENING for qualified field representative capable of appointing distributors, helping them plan stores, and serving existing customers. Territory Illinois, Wisconsin, Iowa, Indiana. Not necessary live in the Chicago area; could work from central Illinois or Indiana. Present representative being promoted, creating this opportunity with a fast-growing company. Write WARREN REFRIGERATORS, P. O. Box 1436, Atlanta, Georgia.

EXPERIENCED DESIGN and production engineer needed to take complete engineering responsibility for small, well-rated manufacturer of industrial air conditioning and dehumidifying products. Reply BOX A6074, Air Conditioning & Refrigeration News.

DISTRICT SALES manager: Nationally known manufacturer of a complete line of condensing units and all popular size packaged air conditioners, residential and commercial. Permanent position, salary, car, expenses, commission. Must be willing to travel well established territory, part of Alabama, Georgia. Dealer contacts. Experience in this field necessary. State age, education, past connections first letter. BOX A6098, Air Conditioning & Refrigeration News.

EQUIPMENT FOR SALE

NOTICE: DISTRIBUTORS, dealers, service men, users refrigeration equipment—repair parts available all models Baker ammonia and Freon compressors. We are exclusive Baker export sales office. Manufacturers' export agents refrigeration, air conditioning, and allied equipment. THE KEISER COMPANY, Paul Building, Utica, New York.

MODEL HH 2 h.p. automobile air conditioning compressors tapered shaft, vertical mount, complete with flywheel $33.95. Send for free circulars and catalogs on money saving refrigeration & air conditioning parts and supplies. WALTER W. STARR, 2833 Lincoln Ave., Chicago 13, Illinois.

BUSINESS OPPORTUNITIES

FOR SALE: Fully equipped sheet metal shop in large city. Doing commercial, industrial, residential work, heating and air conditioning. Plenty work ahead till next year. Owner retiring. Will stay to teach business. Personnel will stay. Good, going business. Reasonable, will finance. BOX A6097, Air Conditioning & Refrigeration News.

AIR CONDITIONING and Heating business for sale, has desirable exclusive Franchise for large manufacturer, good reputation, in Washington area. BOX A6100, Air Conditioning & Refrigeration News.

Men on the Move . . .

Worthington Corp.—A. E. CARTER has been elected vice president of manufacturing. He succeeds LESLIE C. RICKETTS, who will devote full time to increased responsibilities as group vice president of five Worthington operating divisions in New Jersey and Massachusetts. Carter has been manager of the Ford Motor Co. parts plant at Rawsonville, Mich.

Dunham-Bush, Inc.—HARRY E. SMITH, newly-appointed sales engineer, will handle cooling products for Dunham-Bush and Brunner Div. in the Utica-Syracuse-Rochester area, covering central New York state. ROBERT E. LUKEN has been added to the staff as sales engineer for cooling products at Columbus, Ohio. JOHN W. TYNAN has been named sales engineer for heating products in the Cincinnati territory.

Other personnel additions: In Cleveland—JOHN P. KILBANE, application engineer; in St. Louis—ROBERT W. RAMSEY, application engineer; Los Angeles—HANS-JUERGEN BRENMOEHL, application engineer; Chicago—KENNETH KOBS, salesman, covering heating products, Milwaukee; northeast—THOMAS A. NAEGLI, application engineer, for N.E. district office, West Hartford, Conn.

Also, WILLIAM M. JACKSON will represent the company in the Albany, N. Y. territory for cooling and industrial products, and JOHN M. HAIG has been named sales engineer in the Minnesota office to handle heating and cooling products.

Hupp Corp.—DAVID P. HARING has been appointed regional sales manager of the southeastern states for the Typhoon Air Conditioning Co. (Brooklyn) and Typhoon Heat Pump Co. (Tampa) divisions. Haring, who will headquarter in Atlanta, was formerly advertising manager of Westinghouse Electric Corp.'s Air Conditioning Div. and has worked in sales positions for Westinghouse, Sunbeam Corp., and Servel, Inc.

Whirlpool Corp. — F. JAMES FRANKLIN has been promoted to sales manager of "RCA Whirlpool" home freezers. He will report to S. E. SWEET, general manager, refrigeration division. CHESTER F. WORTHINGTON, formerly sales manager for both freezers and refrigerators, will devote his full time to sales of gas and electric refrigerators.

New field sales manager of RCA Whirlpool home appliances is THOMAS F. BARTLEY, former range sales manager. He succeeds JAMES V. BAXTER, who resigned to enter his own business.

York Corp. — GEORGE C. BRILEY has been named manager of the southwest district. He will be responsible for the sale of engineered air conditioning and refrigeration products in Texas, Louisiana, New Mexico, and part of Mississippi. He has been manager of the Rochester branch.

Philco Corp. — WILLIAM H. BRADBURY has been named field operations manager. He has been credit manager for the corporation with supervision of all distributor accounts.

Rheem Mfg. Co. — Appointment of A. G. HANDSCHUMACHER to the newly-created position of corporate director of research and development was announced. He continues also in his post as vice president and general manager of Rheem's Electronics Div.

Westinghouse Electric Corp. — SMITH T. GROVES, formerly district manager for Westinghouse Appliance Sales at Memphis, has been named southwestern regional manager for the firm with offices at St. Louis. He succeeds JAMES J. EAGAN who has been made manager of the television-high fidelity department of Westinghouse's television-radio division.

Edwin L. Wiegand Co.—Appointment of PRESSLY H. McCANCE, former president of Duquesne Light Co., as assistant to the president was announced. He will have the principal assignment of coordinating the company's relationships with electric utilities throughout the country.

Standard Furnace Supply Co., Ltd. (Omaha, Neb.)—JOSEPH A. MACCHIETTO has been named factory engineer for Standard Mfg. Co., factory division of Standard Furnace Supply. He was formerly associated with Fairbanks-Morse & Co. RALPH DIETRICH, DICK ANDERSON, and EDWARD J. MARTIN, who were recently added to the sales organization, will represent Standard in the central, north central, and southwestern states, respectively.

Anheuser-Busch, Inc. — ELMER M. HOEFLE has been appointed sales manager of the Refrigerated Cabinet Div. He has been the division's eastern regional sales manager.

Norge Div., Borg-Warner Corp.—FRANK COYLE has been appointed national refrigerator sales manager. He has been manager of the contract sales division in charge of sales to builders, mobile homes, and government agencies, a position he will still hold.

PHIL H. WEIL has been named manager of national key account sales. He was manager of dealer sales in the Washington, D. C.-Baltimore area for Hotpoint Co.

Transfer of RAYMOND KNOSEN as appliance district manager in eastern Pennsylvania, Maryland, and Washington, D. C. was announced. He previously covered distributors in Ohio, western Pennsylvania, and West Virginia. LOUIS J. BRAVACOS was named district manager for New England. He has been factory representative in 10 states for Whirlpool.

PAUL E. ROMAN has been appointed director of marketing, research, a promotion from manager of market analysis.

Solar Permanent Co.—THOMAS E. WYLES has been named district sales manager to represent the firm in Colorado, California, Oregon, Wyoming, Washington, Idaho, Utah, Montana, and British Columbia. He has been western district manager for Lazarus Laboratories.

The Trane Co.—J. H. FRANCIS has been promoted to manager of the Canton sales office, to which he was assigned earlier.

Three men have been named to specialize in the sale of "Climate Changer" residential and commercial self-contained air conditioning equipment. The men and their areas of assignment are: KENNETH J. FLAHERTY, Columbus, Ohio; JOSEPH A. SHEA, Allentown, Pa.; and ROBERT D. TREBILCOX, Milwaukee.

RICHARD F. FERRIS has been assigned to the New York office as a sales engineer. He joins Trane with four years' sales experience in the air conditioning field.

Elof Hansson, Inc.—EDWIN S. BISHOP, for 17 years with York Div., Borg-Warner Corp. as applied research engineer in noise and vibration control, has joined the Acoustical Div. in New York City as manager, engineering and research.

Utility Refrigerator Co. (Los Angeles)—Recently appointed institutional consultant is VIRGINIA ANN MAIER who was dietitian at St. Francis hospital, Lynwood, before entering public relations.

Heater & Tank Div., John Wood Co.—PATRICK N. MORGAN has been named a vice president. He will continue as eastern sales manager to direct sales, advertising, and allied activities in the area served by the Conshohocken plant.

Steveco, Inc. (Atlanta) — LeGRAND REXFORD has been appointed manager, purchasing and inventory. For the past 10 years he has been associated with General Electric Co. in its Atlanta apparatus sales office.

Century Electric Co. — F. L. "TED" BEATTIE was appointed acting district manager of the Milwaukee branch office, to which he was assigned in 1956. An application engineer, he succeeds W. D. HELM who has been transferred to Chicago to manage the branch office there. Helm replaces GRANT HODGSKISS, who has been transferred to manage the Omaha territory. Effective Oct. 1, Hodgskiss will replace J. S. JERVIS, who is retiring after 42 years of service with Century.

Ebco Mfg. Co. — RICHARD J. RADCLIFFE has been named assistant chief engineer—product development and test. He was formerly chief development engineer with O. A. Sutton Corp.

National-U. S. Radiator Corp.—ROY O. SHELKEY, formerly manager of the Finned Surface Sales Section, Heating & Air Conditioning Div., was named manager of the Detroit branch. WILLIAM F. HERSHEY was advanced from sales manager of the Detroit branch to manager of the Cincinnati branch. JOHN FUSSNER has been named manager from assistant manager of Finned Surface Sales. WILLIAM S. PATTON has been appointed advertising production manager, a new post.

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There's a Primore Valve for your particular job . . . If there is not, we'll design one. Ask to see our representative.
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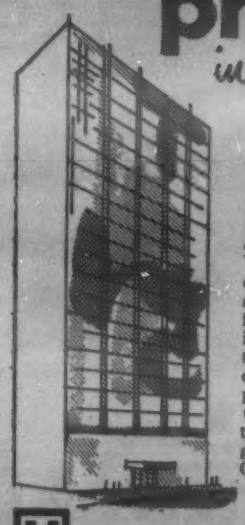
West Coast Plant: 16028 S. Marquardt Ave., P.O. Box 142, Norwalk, Calif.
In Canada: General Equipment Corp., Ltd., Toronto, Ont.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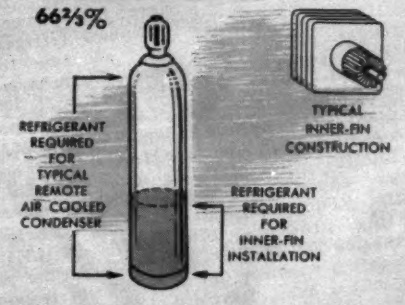
THE NEW HAMILTON HOTEL
Rates from $5
20 SOUTH DEARBORN
IN KANSAS CITY IT'S THE BELLERIVE HOTEL
100% AIR-CONDITIONED

A REMOTE AIR COOLED CONDENSER THAT REQUIRES UP TO 1/3 OF THE REFRIGERANT CHARGE USED BY COMPETITIVE MODELS


AVERAGE SAVING ON REFRIGERANT CHARGE 66⅔%
REFRIGERANT REQUIRED FOR TYPICAL REMOTE AIR COOLED CONDENSER
TYPICAL INNER-FIN CONSTRUCTION
REFRIGERANT REQUIRED FOR INNER-FIN INSTALLATION

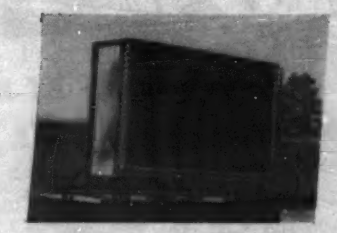
A RECENT 300 TON JOB SHOWED SAVINGS OF 1800 LBS. OF REFRIGERANT THROUGH USE OF THESE UNITS.

Yes, the Dunham-Bush 'BC' Remote Air Cooled Condensers with famous Inner-Fin construction mean savings of 67% in refrigerant charge. Additionally, they mean smaller receivers and minimum loss if the system charge is lost.

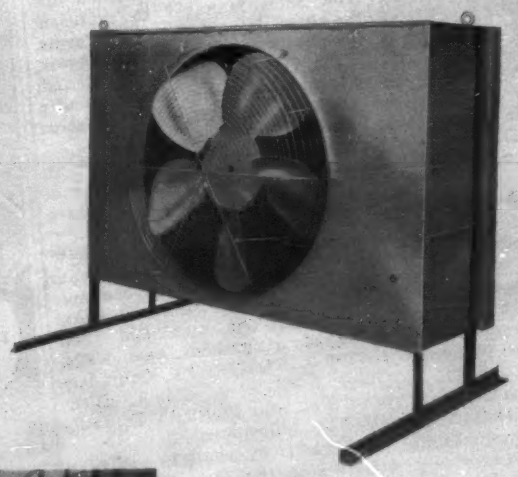
In these expertly planned units, the exclusive Inner-Fin construction diminishes the internal volume of the coil while increasing the heat transfer coefficient.

And higher heat transfer factors permit design of more compact units, saving valuable space in installation.

AS MUCH AS 53.5 TON CAPACITY IN ONE UNIT



The Dunham-Bush line of 'BC' Remote Air Cooled Condensers includes models in 13 sizes with capacities ranging from 2.2 tons to 53.5 tons, making possible use of a single unit for practically any job!



FOR ALL 'ROUND PROTECTION

Plastic vinyl paint is applied to all ferrous parts of unit casing and structure in three stages:

PRIMER—a polyvinyl plastic combined with zinc chromate.

INTERMEDIATE—a vinyl resin with high lead content.

FINISH—hard grey, all weather resistant plastic vinyl.

All interior surfaces of the unit casing are given an extra finish coat of plastic vinyl.

AND FOR MAINTAINING SATISFACTORY HEAD PRESSURES

at all ambients, Dunham-Bush engineers offer the 'PS' Pressure Stabilizer.

'PS' units can be mounted indoors near the compressor, facilitating the making of necessary adjustments. They are thoroughly factory tested and assembled, and require connection only to the refrigerant liquid and discharge lines. No extra piping or special loops required. Regulating valve gives smooth pressure control and eliminates wide pressure fluctuations inherent in other head control systems.

The name Dunham-Bush is synonymous with efficient, satisfactory service for all types of pressure and temperature conditions. For technical assistance, our engineering staff is at your service. For more information, contact us.

Dunham-Bush, Inc.

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